ORDER NO. VRD9201M105

# Service Manual

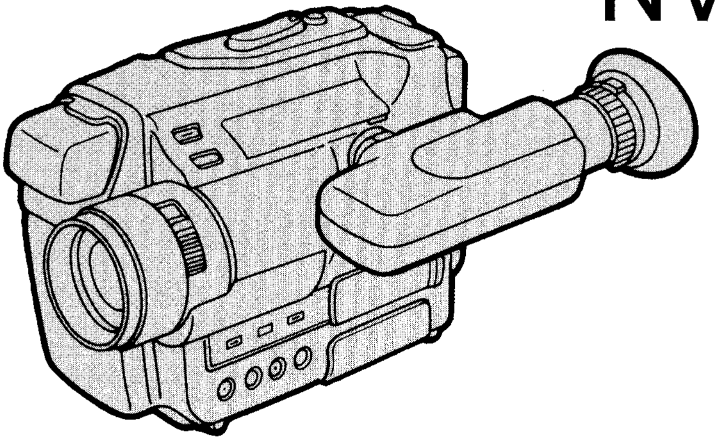
*General Description*
*Adjustment Procedures*
*Block / Schematic Diagrams*
*Exploded Views / Parts List*

**Panasonic** S-VHS-C VHS PAL 625

Hi-Fi HQ

VHS-C Movie

# NV-S7EG/B/A/EC
# NV-S700EN



## SPECIFICATIONS

| ITEM | SPECIFICATION |
|---|---|
| POWER | Source: DC 6.0V<br>Consumption; Recording mode; 6.9W<br>(Battery operation) |
| VIDEO RECORDING SYSTEM | 4 rotary heads, helical scanning system PAL |
| FM AUDIO RECORDING SYSTEM | 4 rotary heads, helical scanning system |
| TAPE FORMAT | S-VHS-C/VHS-C Cassette Tape<br>(Tape width 12.7mm) |
| TAPE SPEED | SP mode: 23.39mm/s<br>LP mode: 11.7mm/s<br>Record/Playback Time:<br>SP mode: 45min. with NV-SEC45E<br>LP mode: 90min. with NV-SEC45E |
| CAMERA | PICK-UP ELEMENT:<br>CCD (Charge Coupled Device) |
| | STANDARD ILLUMINATION: 1,400 lux |
| | MINIMUM REQUIRED ILLUMINATION:<br>3 Lux (Low Light Mode)<br>1 Lux (Digital Gain Up Mode) |
| | LENS: 8 : 1 Power Zoom Lens with<br>Digital AI Auto Focus, Auto Iris,<br>Auto Focus System, F1.4 (6~48mm),<br>Filter Diameter 37mm |
| | IMAGE SENSOR: 1/3 inch CCD Image Sensor |
| | VIEW FINDER: 2/3" Electronic View Finder |

| ITEM | SPECIFICATION |
|---|---|
| VIDEO | HEADS: 4 rotary heads, 1 flging erase head |
| | OUTPUT: PHONO CONNECTOR;<br>1.0Vp-p 75Ω unbalanced<br>S-VIDEO OUT;<br>1.0Vp-p 75Ω unbalanced |
| AUDIO | HEAD: 1 Stationary head (Normal-Mono)<br>4 rotary heads;<br>2 channels (Hi-Fi Sound-Stereo) |
| | OUTPUT: PHONO CONNECTOR;<br>−8dB, 600Ω unbalanced |
| | INPUT: MIC IN (M3);<br>−70dB 4.7kΩ or more unbalanced |
| WEIGHT | Approx. 780g (without Battery Pack) |
| DIMENSIONS | 156(W)×118(H)×204(D) mm |
| STANDARD ACCESSORIES | 1 pc. AC Adaptor<br>1 pc. Battery Pack<br>1 pc. Cassette Adaptor<br>1 pc. Shoulder Strap<br>1 pc. AV Output Cable<br>1 pc. DC Input Cable<br>1 pc. Battery for Cassette Adaptor Operation<br>1 pc. Battery for Clock Operation<br>1 pc. Phono/BNC Plug (NV-S7B)<br>1 pc. RF Adaptor (NV-S7B/A, NV-S700EN)<br>1 pc. Soft Case (NV-S7B)<br>1 pc. 4P S-VHS Cable<br>1 pc. Audio Cable |

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

**Panasonic**

# INTRODUCTION

*This service manual contains technical information which will allow service personnels to understand and service the model.*
*Section 1 presents you with some general information of features and controls, enabling you to become familiar with each function.*
*Section 2 contributes to your mechanical and electrical adjustment as well desassembly and replacement procedures.*
*In the case of very common information relating to other models like mechanical adjustments, please refer to each service manual.*
*Section 3 contains block diagrams which offers you information for checking and understanding each circuit. Schematic diagrams which give you detailed information such as waveforms, voltage data, function e.t.c ...*
*Section 4 contains exploded views and parts list.*
*Please place orders using the parts list and not the drawing reference numbers.*
*If the circuit is changed or modified, this information will be followed by supplementary service manual to be filed with original service manual.*

# CONTENTS

## TECHNICAL INFORMATION

## SECTION 1 GENERAL DFSCRIPTIONS

CONTROLS AND FUNCTIONS ........ 1-1
USING THE BATTERY PACK ........ 1-3
SETTING THE CLOCK ........ 1-5
SHOOTING WITH THE DIGITAL IMAGE STABILITY FUNCTION ........ 1-6
SHOOTING LANDSCAPES AT DUSK OR OTHER EVENING SCENES ........ 1-7
SHOOTING THE DARK ........ 1-7
INSERTING A STILL PICTURE WITH WIPE EDITING ........ 1-8
FADING OVER OR SUPERIMPOSING A STILL PICTURE ONTO THE MOVING PICTURE ........ 1-8
PLAYBACK VIA A TV SET (CONNECTIONS) ........ 1-9
OPTIONAL ACCESSORIES ........ 1-10
OVARNING/ALARM INDICATIONS IN THE VIEWFINDER ........ 1-10

## SECTION 2 ADJUSTMENT PROCEDURES

2-1. DISASSEMBLY PROCEDURES ........ 2-1
2-2. DISASSEMBLY PROCEDURES OF MECHANISM ........ 2-4
2-3. ASSEMBLY AND PHASE ADJUSTMENT PROCEDURES OF MECHANISM ........ 2-7
2-4. INTERCHANGEABILITY ADJUSTMENT ........ 2-12
2-5. ELECTRICAL ADJUSTMENT PROCEDURES ........ 2-20
LOCATION OF TEST POINTS & CONTROLS (1) ........ 2-44
LOCATION OF TEST POINTS & CONTROLS (2) ........ 2-45

## SECTION 3 BLOCK DIAGRAM & SCHEMATIC DIAGRAMS

3-1. PROCESS BLOCK DIAGRAM ........ 3-1
3-2. AUTO FOCUS BLOCK DIAGRAM ........ 3-5
3-3. SENSOR BLOCK DIAGRAM ........ 3-9
3-4. CCD DRIVE BLOCK DIAGRAM ........ 3-11
3-5. SYSTEM CONTROL & SERVO BLOCK DIAGRAM ........ 3-13
3-6. LUMINANCE & CHROMINANCE BLOCK DIAGRAM ........ 3-16
3-7. EVF BLOCK DIAGRAM ........ 3-19
3-8. SUB OPERATION SCHEMATIC DIAGRAM ........ 3-20
3-9. POWER SCHEMATIC DIAGRAM ........ 3-22
3-10. POWER & SUB OPERATION C.B.A. ........ 3-25
3-11. PROCESS SCHEMATIC DIAGRAM ........ 3-29
3-12. SENSOR SCHEMATIC DIAGRAM ........ 3-36
3-13. AUTO FOCUS SCHEMATIC DIAGRAM ........ 3-39
3-14. EVF SCHEMATIC DIAGRAM ........ 3-42
3-15. EVF C.B.A. ........ 3-44
3-16. CAMERA (PROCESS, SENSOR & AUTO FOCUS Section) C.B.A. ........ 3-46
3-17. MAIN (SUB SYSTEM CONTROL, SYSTEM CONTROL & SERVO, LUMINANCE & CHROMINANCE, VITC, AUDIO AND Hi-Fi AUDIO Section) C.B.A. ........ 3-49
3-18. VTR OPERATION RELAY C.B.A. ........ 3-53
3-19. SUB SYSTEM CONTROL SCHEMATIC DIAGRAM ........ 3-55
3-20. AUDIO SCHEMATIC DIAGRAM ........ 3-58
3-21. Hi-Fi AUDIO SCHEMATIC DIAGRAM ........ 3-61
3-22. VITC SCHEMATIC DIAGRAM ........ 3-63
3-23. SYSTEM CONTROL & SERVO SCHEMATIC DIAGRAM ........ 3-67
3-24. LUMINANCE & CHROMINANCE SCHEMATIC DIAGRAM ........ 3-71
3-25. DRIVE SCHEMATIC DIAGRAM ........ 3-78
3-26. DRIVE C.B.A. ........ 3-81
3-27. MIC SCHEMATIC DIAGRAM ........ 3-83
3-28. MIC C.B.A. ........ 3-85
3-29. CIRCUIT BOARD LAYOUT ........ 3-87
3-30. INTERCONNECTION SCHEMATIC DIAGRAM ........ 3-89

## SECTION 4 EXPLODED VIEWS & PARTS LIST

4-1. EXPLODED VIEWS ........ 4-1
  ❶ VTR MECHANISM SECTION (1) ........ 4-1
  ❷ VTR MECHANISM SECTION (2) ........ 4-2
  ❸ VTR MECHANISM SECTION (3) ........ 4-3
  ❹ CAMERA LENS SECTION ........ 4-4
  ❺ FRAME & CASING PARTS SECTION (1) ........ 4-5
  ❻ FRAME & CASING PARTS SECTION (2) ........ 4-6
  ❼ PACKING PARTS & ACCESSORIES SECTION ........ 4-7
4-2. MECHANICAL REPLACEMENT PARTS LIST ........ 4-8
4-3. ELECTRICAL REPLACEMENT PARTS LIST ........ 4-10

# Technical Information

## Service caution

1–1. Adjustment of the Camera Section.

In the camera section the EEPROM (Electrical Erasable Programmable Read Only Memory) has replaced the conventional variable resistors.
The EEPROM memorizes the adjustment value as digital data. Thus, when adjusting the camera process it is necessary to change the data which is stored in the EEPROM. The EVR (Electrical Variable Resistor) Fixture enables communication directly with the EEPROM and is able to change the data stored in it.

The EVR Fixture is connected to and used with the camera as shown below. (For more details, refer to camera adjustment section.)

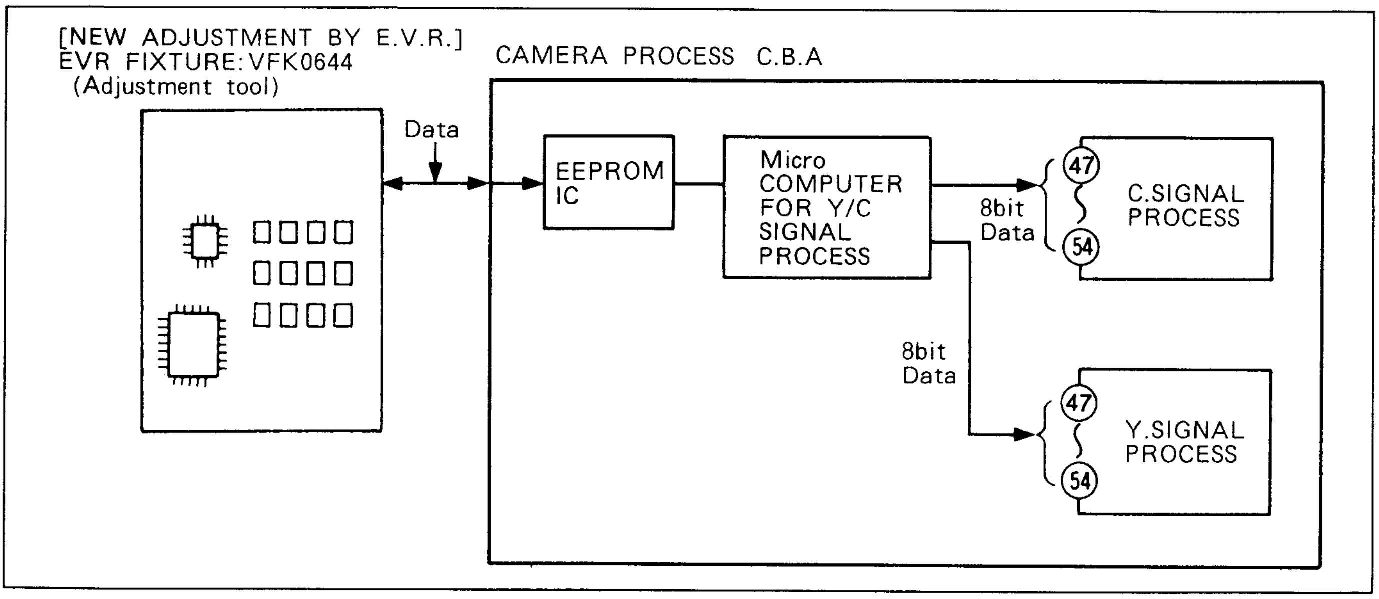


Fig. T1

ROM IC for EVR fixture.

We are pleased to introduce the new ROM IC (VFK0701ROM5) for the EVR fixture that we developed to adjust the NV–S7/S700. This ROM IC has many superior features such as automatic data writing, automatic calculation of auto white balance and/or colour reproduction and more.

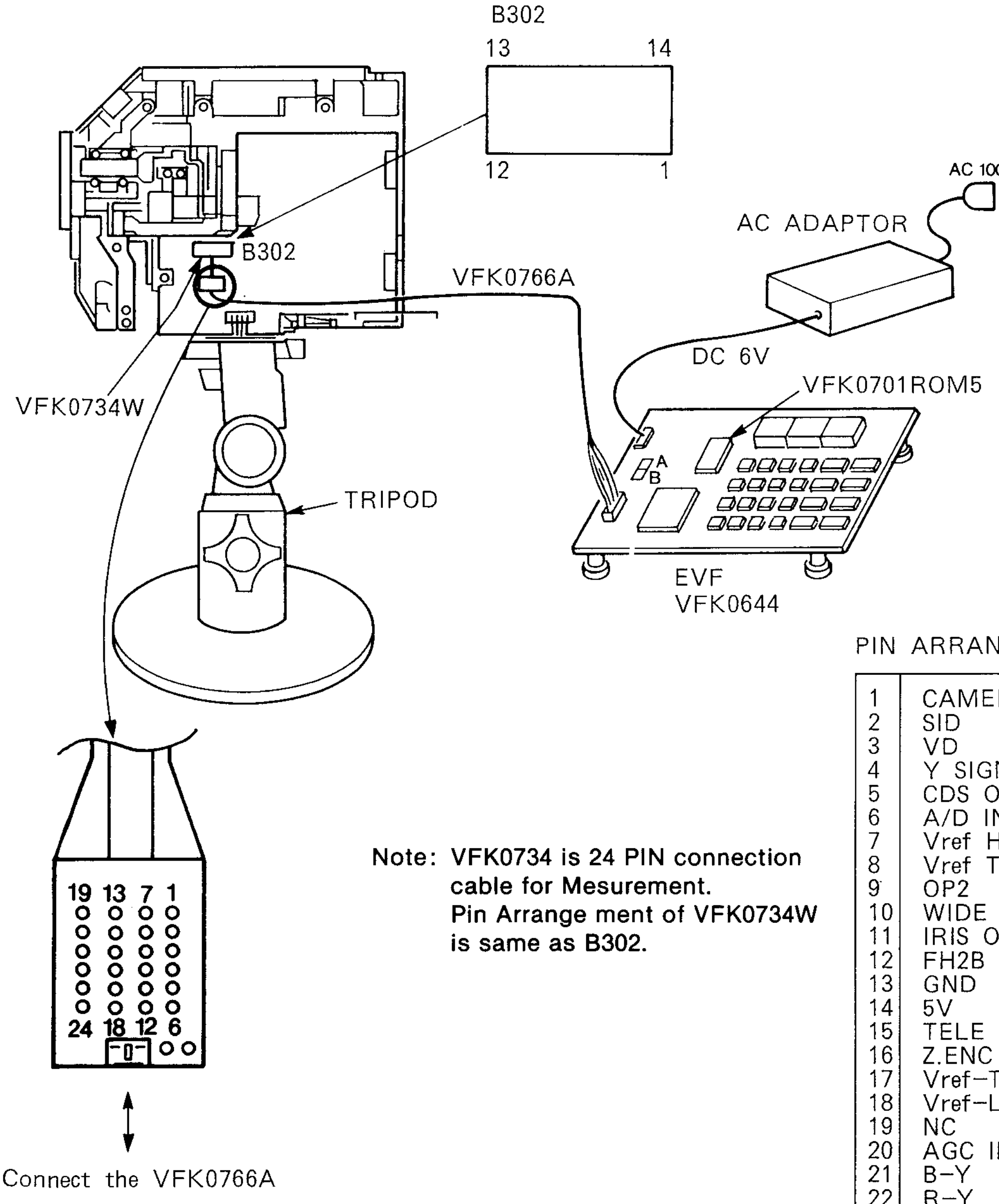
We are also pleased to introduce the new connecting cables (VFK0766A & VFK0734W) for the NV–S7/S700 and EVR Fixture (VFK0644).

The connections between NV–S7/S700 and EVR Fixture are solderless using the VFK0766A or VFK0734W. Please refer to Fig.T3 for how to use the cables.

| ROM NUMBER & availabilty | Applicable models & Function | PART NUMBER OF EVR CONNECTION CABLE |
|---|---|---|
| VFK0701ROM1<br>available | NV-MS70/NV-M810/NV-S1/NV-S100(PAL & NTSC)<br>① General Adjustment for Camera unit<br>② Automatic Calculation for AWB & Colour Reproduction<br>③ Average Data Automatic rewriting | VFK0769 |
| VFK0701ROM2<br>available | NV-S5/NV-S500(PAL & NTSC)<br>① General Adjustment for Camera unit<br>② Automatic Calculation for AWB & Colour Reproduction<br>③ Average Data Automatic rewriting | VFK0730 |
| VFK0701ROM3<br>available | NV-G1/G2/G3(G100/G200/G300)& NV-MS95/MS950(PAL ONLY)<br>① General Adjustment for Camera unit<br>② Automatic Calculation for AWB & Colour Reproduction<br>③ Average Data Automatic rewriting | VFK0699 |

| | | |
|---|---|---|
| **VFK0701ROM4**<br>available | NV-S7/S9(NTSC ONLY)<br>① General Adjustment for Camera unit<br>② Automatic Calculation for AWB & Colour Reproduction<br>③ Average Data Automatic rewriting | **VFK0766A** |
| **VFK0701ROM5**<br>available | NV-S7/NV-S700/G220/G202(PAL ONLY)<br>① General Adjustment for Camera unit<br>② Automatic Calculation for AWB & Colour Reproduction<br>③ Average Data Automatic rewriting | **VFK0766A(NV-S7/S700)**<br>**VFK0699 (NV-G220/G202)** |
| **VFK0701ROM6**<br>Not yet<br>available | | |

Fig. T2 Table for VFK0701ROM Series


B302
13
14
12
1
AC 100V
AC ADAPTOR
B302
VFK0766A
DC 6V
VFK0701ROM5
VFK0734W
A
B
TRIPOD
EVF
VFK0644
19 13 7 1
24 18 12 6

Note: VFK0734 is 24 PIN connection cable for Mesurement.
Pin Arrange ment of VFK0734W is same as B302.

Connect the VFK0766A

PIN ARRANGEMENT OF B302

| | |
|---|---|
| 1 | CAMERA CLOCK |
| 2 | SID |
| 3 | VD |
| 4 | Y SIGNAL |
| 5 | CDS OUT |
| 6 | A/D IN |
| 7 | Vref H |
| 8 | Vref T |
| 9 | OP2 |
| 10 | WIDE |
| 11 | IRIS OPEN |
| 12 | FH2B |
| 13 | GND |
| 14 | 5V |
| 15 | TELE |
| 16 | Z.ENC |
| 17 | Vref-T |
| 18 | Vref-L |
| 19 | NC |
| 20 | AGC IN |
| 21 | B-Y |
| 22 | R-Y |
| 23 | CAMERA TEST |
| 24 | GND |

Fig. T3

## 1–2. Service Extension Cables.

Use the following extension cables when checking or adjusting the individual circuit boards.

| | PART NBR | PART NAME | CONNECTION | Q'TY |
|---|---|---|---|---|
| 1 | VFK0725 | 18 PIN FLAT CABLE | CAMERA C.B.A. FP301~MAIN C.B.A. FP3003 | 1 |
| 2 | VFK0726 | 18 PIN FLAT CABLE | CAMERA C.B.A. FP302~POWER C.B.A. P1001 | 1 |
| 3 | VFK0668 | 24 PIN EXTENSION CABLE | CAMERA C.B.A. B301~CAMERA OPERATION | 1 |
| 4 | VFK0751 | 18 PIN EXTENSION CABLE | MAIN C.B.A. FP6101~VTR OPERATION | 1 |
| 5 | VFK0728FW | 9 PIN EXTENSION CABLE | MAIN C.B.A. FP4001~AC HEAD | 1 |
| 6 | VFK0727FW | 16 PIN FLAT CABLE | MAIN C.B.A. FP6001~CHASSIS | 1 |
| 7 | VFK0729FW | 6 PIN FLAT CABLE | MAIN C.B.A. FP6002~CHASSIS | 1 |
| 8 | VFK0723 | 22 PIN EXTENSION CABLE | MAIN C.B.A. B6201~DRIVE C.B.A. P2001 | 1 |
| 9 | VFK0752 | 34 PIN EXTENSION CABLE | MAIN C.B.A. B6001~POWER C.B.A. P1002 | 1 |

## 1–3. How to use extension cables.

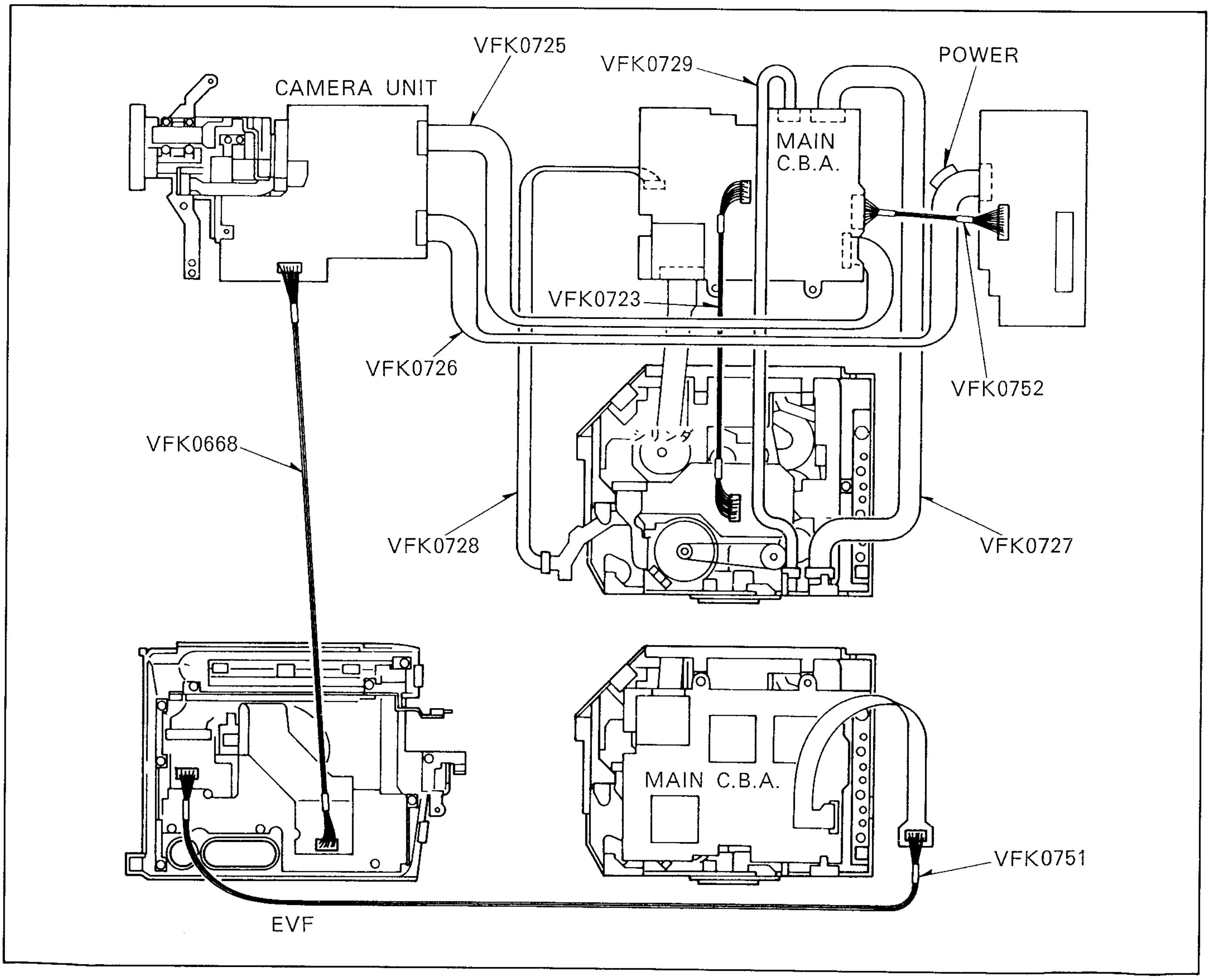

VFK0725
CAMERA UNIT
VFK0729
POWER
MAIN C.B.A.
VFK0723
VFK0726
VFK0752
VFK0668
シリンダ
VFK0728
VFK0727
MAIN C.B.A.
VFK0751
EVF

Fig. T4

## 2. Self-diagnostic system and service test mode.

### 2-1. General

NV-S7/S700 has a system self-diagnoses program which faclitates quick trouble shooting. (Same as NV-S5/S500) NV-S7/S700 has two service modes.

Pressing the DATE/TIME(ON/OFF SWITCH), TRACKING and RESET keys simultaniously switches the unit into Service Mode 1.

Service Mode 1 displays the condition of the safety divices.

Pressing the TAPE, TRACKING and RESET keys simultaniously switches the unit into Service Mode

Service Mode 2 displays the condition of the mechanism.

### 2-2. Service Mode 1.

Using NV-S7/S700 it is possible to see the RAM Data of IC6001 on the EVF in Service Mode 1. How to read the RAM data is shown in Fig.T5 to Fig.T10.

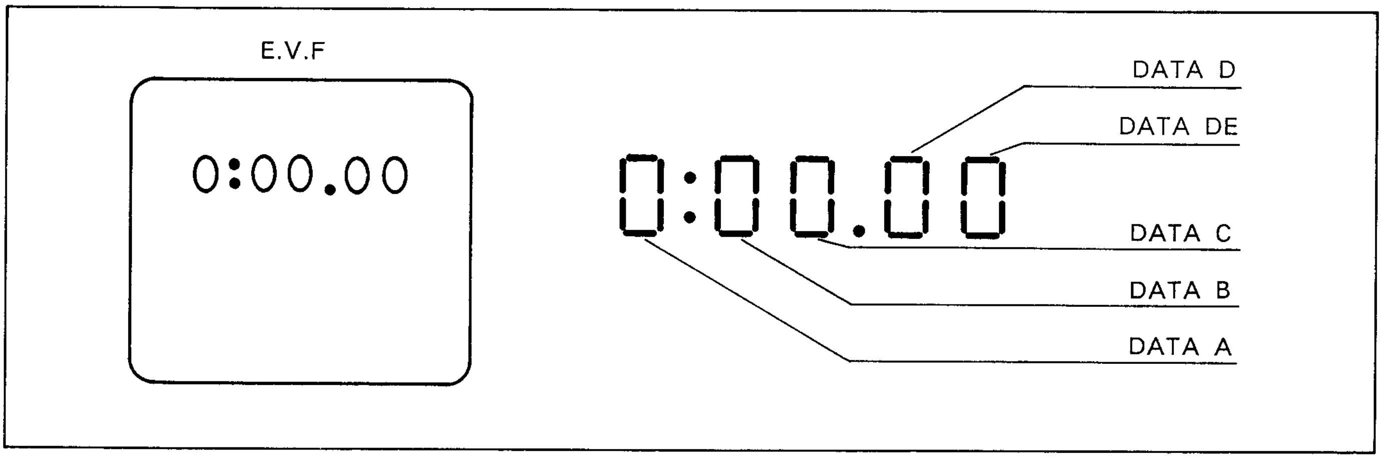


Fig. T5

(1)Information of Data A

| CONTENTS \ INDICATION | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **CASSETTE SW**<br>**up: 1**<br>**down: 0** | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| **SAFETY TAB SW**<br>**WITH TAB: 1**<br>**WITHOUT TAB: 0** | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| **S-VHS SW**<br>**ON: 1**<br>**OFF: 0** | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| **S-VHS DETECT SW**<br>**NORMAL: 1**<br>**S-VHS: 0** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

Fig. T6

All data is displayed in the Hexadecimal system(letters and numbers 0 to F).
Please refer to Fig.T4 though Fig.T9 for details on Hexadecimal numbers.

If Data A indicates "C", cassette Down Switch is in down condition.
Also Safety Tab switch is in the off condition.

(2).Information of Data B

If Data B indicate "8", There is a possibility that S.Reel Sensor detect lock condition.

| INDICATION<br>CONTENTS | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LOADING LOCK DETECT | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| CYL LOCK DETECT | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| T • REEL LOCK DETECT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| S • REEL LOCK DETECT | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

**0: NORMAL CONDITION** **1: WARNING CONDITION**

Fig. T7

(3).Information of Data C

If Data C indicate "A", There is a possibility that DEW sensor detect dew.

| INDICATION<br>CONTENTS | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BATTERY UNDER CUT DETECT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| DEW | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

**0: NORMAL CONDITION** **1: WARNING CONDITION**

Fig. T8

(4).Information of Data D

If Data D indicate "2",There is a possibility that sensor detect the tape end.

| INDICATION<br>CONTENTS | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UNLOADIG COMMAND<br>OUTPUT: 1<br>NO: 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| TAPE END DETECT | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| BEGINING OF TAPE DETECT | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| POSITION CHATTERING | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

**0: NORMAL CONDITION** **1: WARNING CONDITION**

Fig. T9

(5).Information of Data E

If Data E indicate "1", There is a possibility that IC6001 generated cylinde on command.

| INDICATION<br>CONTENTS | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CYL ON COMMAND | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| CAP ON COMMAND | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
| CAP REV COMMAND | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| LOADING COMMAND | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

0: NO OUTPUT 1: OUTPUT

Fig. T10

2–3. Details of Service Mode 2

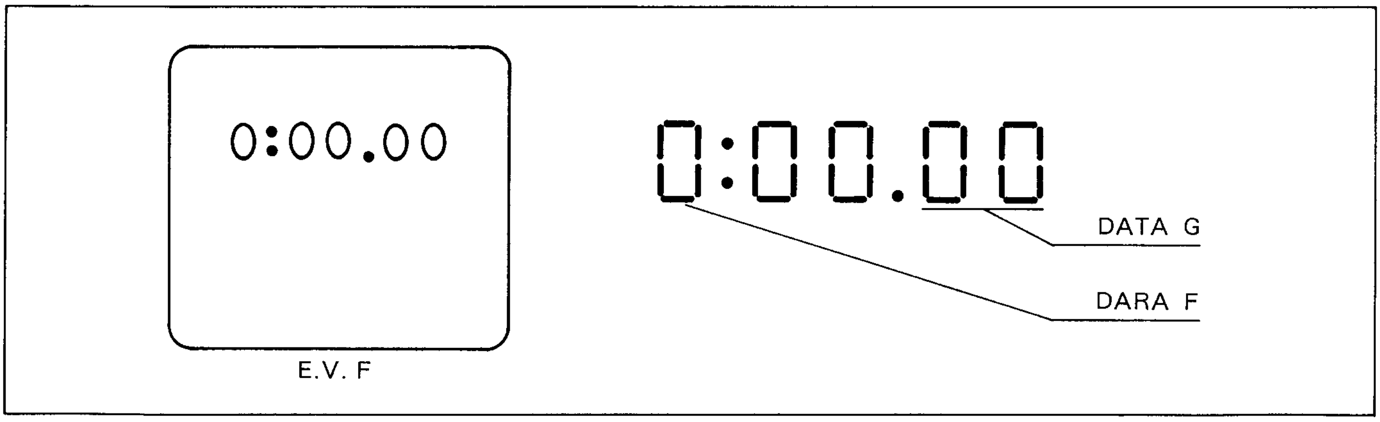


Fig. T11

(1) Information of Data F (Data F indicate the mechanism position)

| Indication | Mechanism position |
|---|---|
| 1 | EJECT |
| 2 | PRE • EJECT |
| 3 | STOP 1 |
| 4 | PRE • STOP |
| 5 | MID |
| 6 | |
| 7 | |
| 8 | STOP 2 |
| 9 | |
| A | PLAY |

(2) Information of Data G (Data G indicate the key operation mode.)

| Indication | Key operation |
|---|---|
| 00 | STOP |
| 02 | REWIND |
| 03 | FF |
| 06 | PAUSE |
| 08 | REC |
| 0A | PLAY |
| 30 | |
| 53 | RESER (COUNTER) |
| 7F | NOT USED |
| | |

Fig. T12

EXAMPLE FOR INDICASTION

**CAMERA MODE**
**(Press the OPERATE switch and slide it to CAMERA side)**

| | SERVICE MODE 1 | SERVICE MODE 2 |
|---|---|---|
| **CASSETTE DOWN WITHOUT TAPE** | 4: 00.60 | 3: 00.08 |
| **REC PAUSE** | E: 00.01 | A: 00.08 |
| **REC** | E: 00.03 | A: 00.08 |

**VTR MODE**
**(Press the OPERATE switch and slide it to VTR side)**

| | SERVICE MODE 1 | SERVICE MODE 2 |
|---|---|---|
| **CASSETTE DOWN WITHOUT TAPE** | 4: 00.60 | 3: 00.7F |
| **STOP** | E: 00.00 | 8: 00.7F |
| **PLAY** | E: 00.03 | A: 00.7F |
| **PLAY PAUSE** | E: 00.01 | A: 00.7F |
| **FF** | E: 00.03 | A: 00.7F |
| **REW** | E: 00.05 | A: 00.7F |
| **CUE** | E: 00.03 | A: 00.03 |
| **REVIEW** | E: 00.05 | A: 00.02 |

Fig. T13

## 3. HOW TO CHECK DIGITAL CIRCUIT (PROCESS) (Using Ramp Generator)

### 3–1. Checking Principle.

The digital circuit can be checked if a ramp signal (sawtooth signal) is supplied to the input of A/D Converter (IC302–19). The output of A/D Converter is discribed below.

In addition to the A/D Converter (IC302) output, all digital ICs input and output signals become specified pulses, which are listed in schematic diagram.

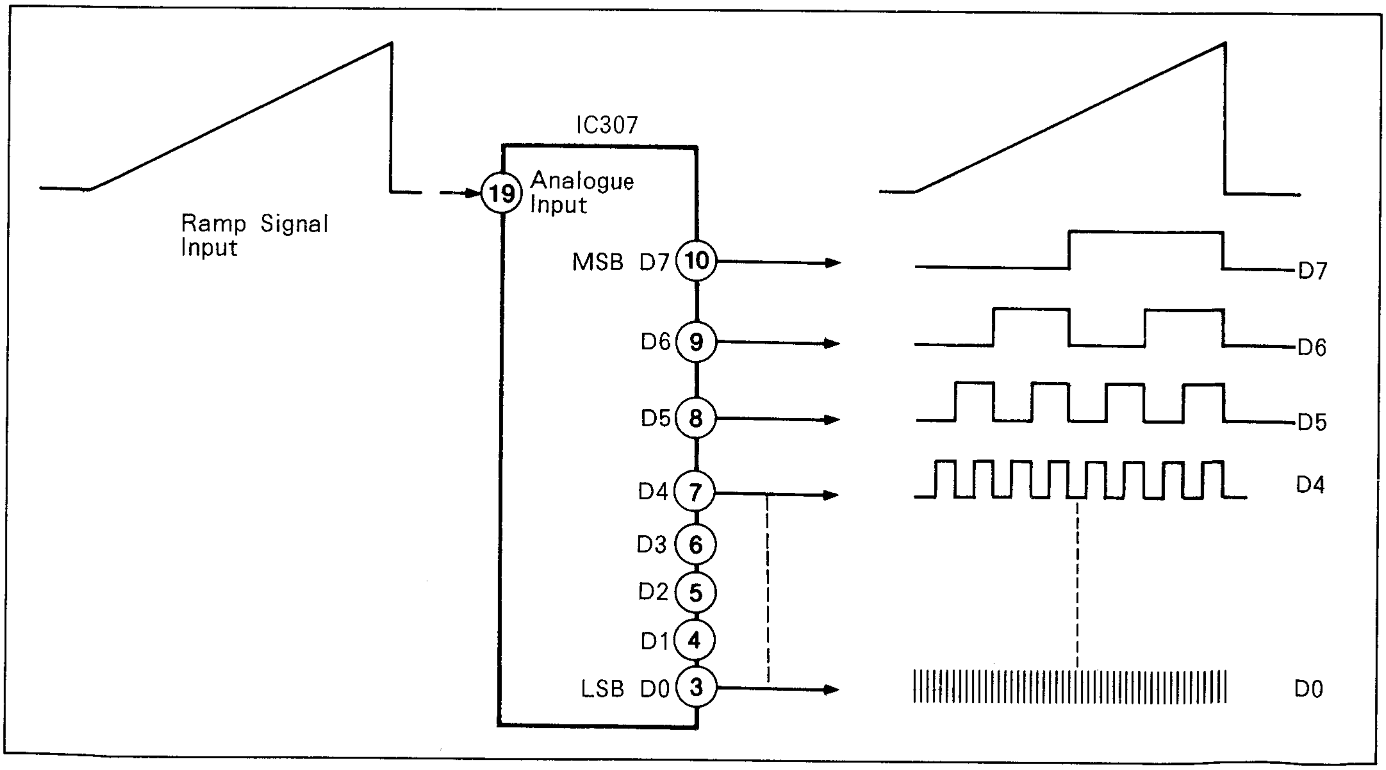
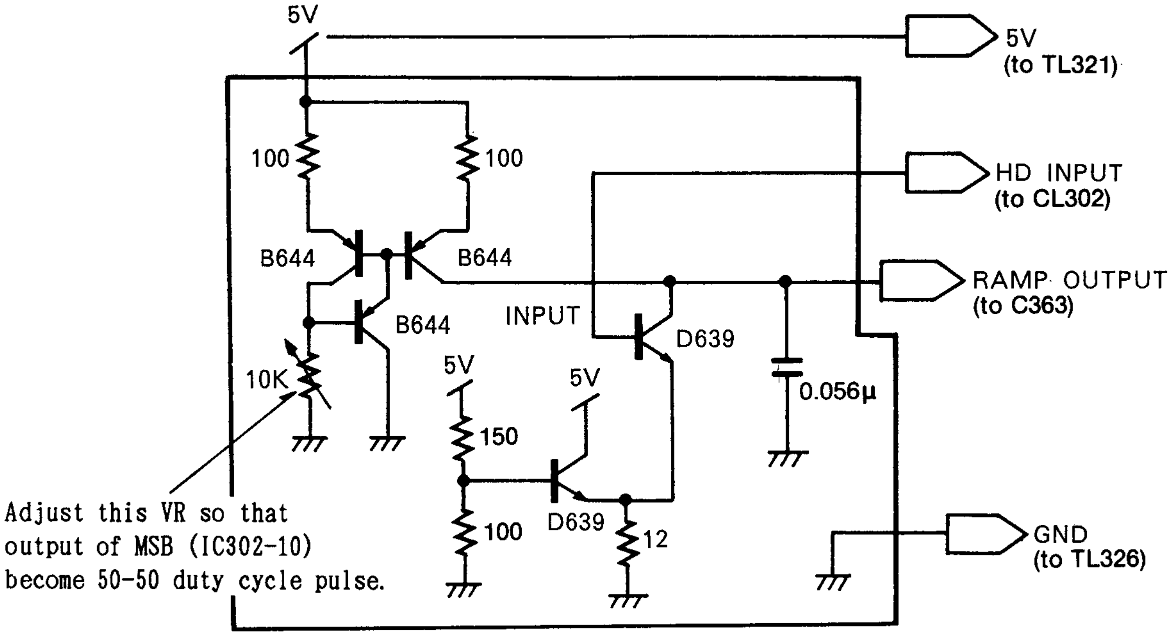


Fig. T14

3–2. How to Connect ramp generator.

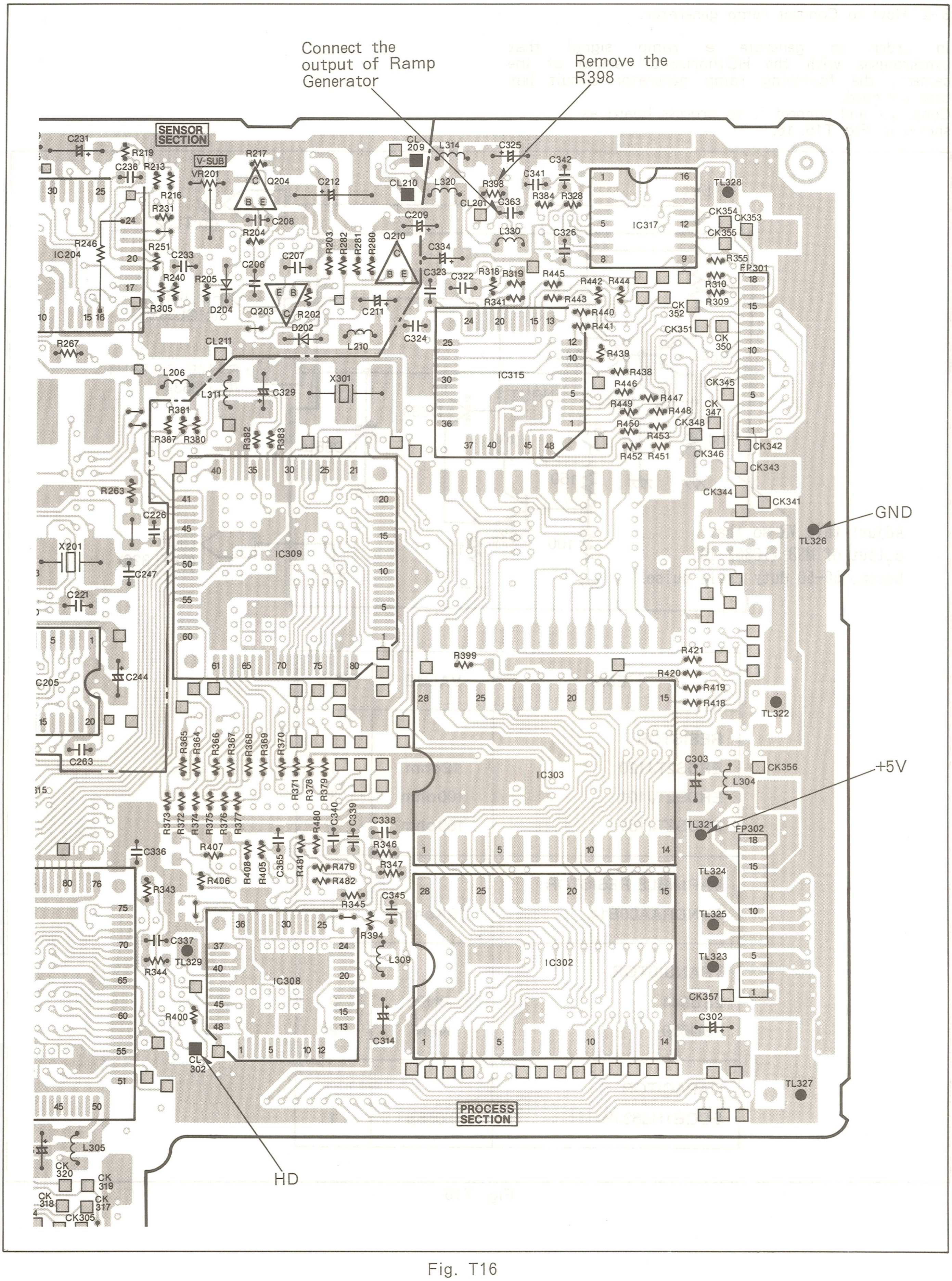
In order to generate a ramp signal that synchronises with the HD(horizontal drive) of the camera, the following ramp generator circuit has been designed.
Construct and connect it to process board as shown in Fig. T15, 16.


5V
5V
(to TL321)
100
100
HD INPUT
(to CL302)
B644
B644
RAMP OUTPUT
(to C363)
B644
INPUT
D639
5V
5V
10K
0.056μ
150
100
D639
12
GND
(to TL326)

Adjust this VR so that output of MSB (IC302-10) become 50-50 duty cycle pulse.

| ITEMS | VALUE | PCS |
|---|---|---|
| **RESISTOR** | | |
| ERDS2TJ120 | 12ohm | 1 |
| ERDS2TJ101 | 100ohm | 3 |
| ERDS2TJ151 | 150ohm | 1 |
| **VARIABLE RESISTOR** | | |
| EVNDRAA00B14 | 10Kohm | 1 |
| **TRANSISTOR** | | |
| 2SB644 | PNP | 3 |
| 2SD639 | NPN | 2 |
| **CAPACITOR** | | |
| ECQB1H563JH | 0.056μ | 1 |

Fig. T15


Connect the output of Ramp Generator

Remove the R398

GND

+5V

HD

SENSOR SECTION
PROCESS SECTION
V-SUB
VR201
Q203
Q204
Q210
D202
D204
IC204
IC302
IC303
IC308
IC309
IC315
IC317
X201
X301
CL201
CL209
CL210
CL211
CL302
L206
L209
L210
L304
L305
L309
L311
L314
L320
L330
R398
C363
C325
FP301
FP302
TL321
TL322
TL323
TL324
TL325
TL326
TL327
TL328
TL329

Fig. T16

## Controls and Functions

**1 Rewind/Review Button [REW/◀◀]**
Use this button for the following operations:
1) With the [OPERATE] Switch set to "CAMERA".
Press it briefly after shooting a scene in order to play back the last few seconds of the recording for quick confirmation that the recording is okay. When this button is kept pressed, the recorded scene is played back at high speed in reverse direction.
2) With the [OPERATE] Switch set to "VTR".
Press it to rewind the tape from the stop mode.
Keep it pressed during playback for high-speed playback in reverse direction.

**2 Play Button [PLAY]**
Press this button to start the playback.

**3 Fast Forward/Cue Button [▶▶/FF]**
1) With the [OPERATE] Switch set to "CAMERA".
When this button is kept pressed, the recorded scene is played back at normal speed in forward direction.
2) With the [ OPERATE] Switch set to "VTR".
Press this button to wind the tape forward at high speed from the stop mode.
Keep it pressed during playback for high-speed playback in forward direction.

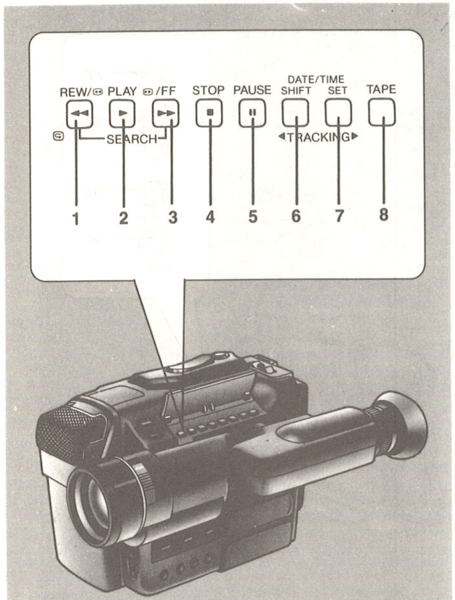
**4 Stop Button [STOP]**
Press this button to stop the playback.

**5 Pause Button [PAUSE]**
Press this button during playback to be able to watch a still picture; press it again to resume normal playback.

**6 Tracking/Date/Time Shift Button [DATE/TIME SHIFT • TRACKING]**
Use this button for the following operations:
1) Press it to advance to the next item during the setting of the time and date.
2) Press it when you want to adjust the tracking manually.

**7 Tracking/Date/Time Set Button [DATE/TIME SET • TRACKING]**
Use this button for the following operations:
1) Press it to start the operation of the clock after setting the time and date.
2) Press it when you want to adjust the tracking manually.

**8 Remaining Tape Time Button [TAPE]**
Press this button to select the length of the cassette tape that is used for shooting or playback.



## Controls and Functions (cont'd)

**9 Operation Switch [OPERATE]**
Set this switch to "CAMERA" for shooting.
Set it to "VTR" for playback.
To turn the Movie Camera off, set it back to the centre "OFF" position.
**("VTR" means Video Tape Recorder.)**

**10 Snapshot Button [SNAPSHOT REC]**
Press this button for shooting a still picture for approx. 5 seconds.
To be able to press this button, the Movie Camera must be in the shooting pause mode ([OPERATE] Switch is set to "CAMERA").

**11 Zoom Buttons [W]/[T]**
Press the [W] Button to gradually zoom out to the wide-angle position for panoramic shots; press the [T] Button to gradually zoom in to the telephoto position for close-up shots of distant subjects.

**12 Shoulder Strap Holders**
Attach the Shoulder Strap to these two holders.

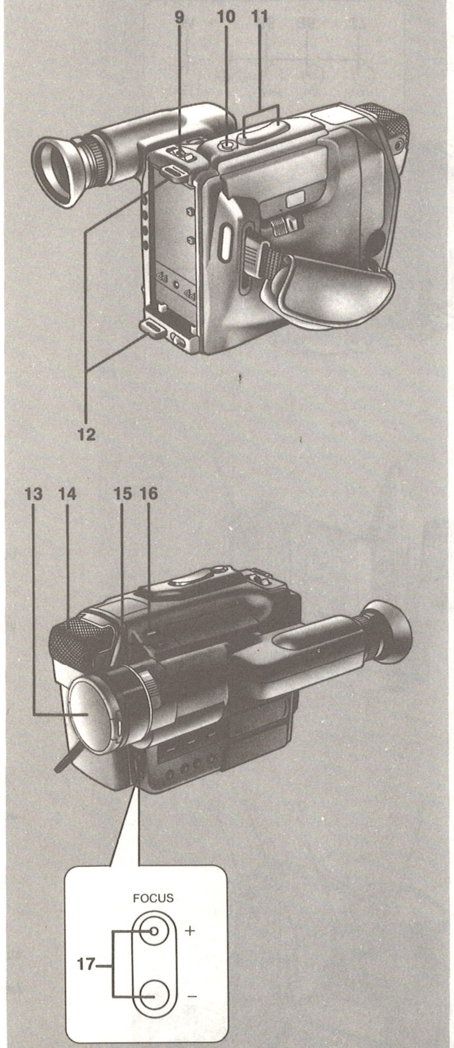
**13 Lens Cap**
The Lens Cap protects the Lens.
Be sure to remove the Lens Cap before starting to shoot.

**14 Stereo Microphone**
On the Hi-Fi sound track, stereo sound will be recorded.
The two-way microphone is highly effective for recording interviews with the local ambience as well as narrations and music.

**15 Fade Button [FADE]**
Press this button to fade out a scene and to fade in the following scene for a soft scene-to-scene transition.

**16 Date/Time Button [DATE/TIME]**
Press this button to make the time and/or date appear in the Viewfinder and superimpose them onto the picture during shooting.

**17 Focus +/– Buttons [FOCUS +/–]**
After selecting the manual focusing mode with the [FOCUS] Button, adjust the focus to the desired subject by pressing these buttons.



## Controls and Functions (cont'd)

**18 Digital Image Stabilizer Button [I. STABILIZER]**
Press this button when you are shooting on the move, from a vehicle for example.

**19 Digital Zoom Button [DIGITAL ZOOM]**
Press this button to increase the power of the Zoom Function from the normal 8 times to 16 times (in the maximum telephoto setting, the subject will be enlarged 16 times compared with the maximum wide-angle setting).

**20 Still/Strobe Button [STILL/STROBE]**
Use this button for the following 2 operations.
(At every push of this button, the operation mode changes.)

| | |
|---|---|
| 1) For still picture shooting: | Press once. |
| 2) For strobe picture shooting: | Press twice. |
| 3) Return to the normal shooting: | Press three times. |

**21 Focus Button [FOCUS]**
Press this button to select manual focus adjustment for shooting.

**22 White Balance Button [W.B]**
Press this button to select manual white balance adjustment for shooting.

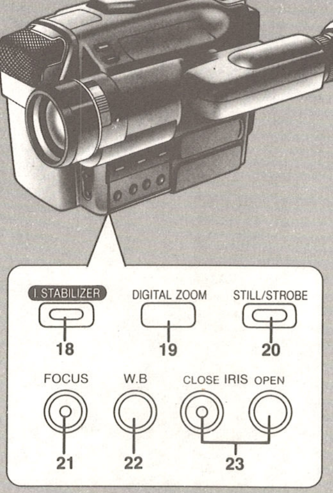
**23 Iris Close/Open Buttons [IRIS CLOSE]/[IRIS OPEN] (p. 64)**
By pressing the [IRIS OPEN] or [IRIS CLOSE] Button, the iris can be adjusted as follows:
OPEN: The subject becomes brighter.
CLOSE: The subject becomes darker.

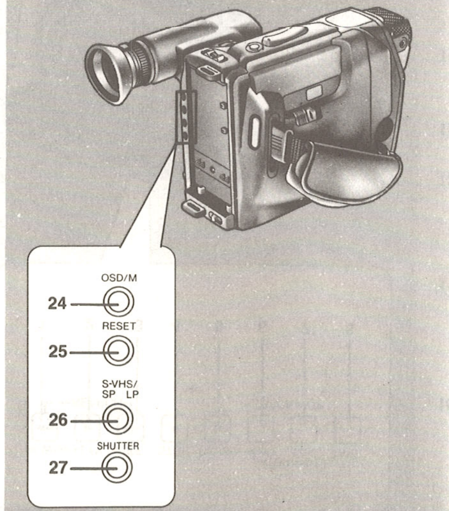
**24 On-Screen Display/Memory Button [OSD/M]**
Press this button to make the indications in the Viewfinder disappear. (Some indications such as "DEW" cannot be canceled.)
Press this button also to activate the Tape Counter Memory Function so that the tape position corresponding to the Tape Counter Indication "M0:00.00" can be found easily during fast-forwarding or rewinding of the tape.

**25 Reset Button [RESET]**
Press this button to reset the tape counter to "0:00.00".

**26 S-VHS/Tape Speed Selector Button [S-VHS/SP • LP]**
At every press of the [S-VHS/SP • LP] Button, the recording system and the tape speed can be changed. (See pages 36, 112.)

**27 Shutter Speed Select Button [SHUTTER]**
Press this button to select a higher shutter speed when shooting scenes with fast movements.





## Controls and Functions (cont'd)

**28 DC Input Socket**
When using the AC Adaptor or the Car Battery Cord (optional) as power supply instead of the Battery Pack, connect the DC Input Cable to this socket.

**29 Start/Stop Button**
Press this button to start shooting a scene. (It is not necessary to keep it pressed during shooting.) Press it again to finish shooting the scene and change the Movie Camera back to the shooting pause mode

**30 Cassette Compartment Opening Knob**
Slide the Cassette Compartment Opening Knob to the right side to open the Cassette Compartment.

**31 Grip Belt**
The height of the Grip can be adjusted in 4 steps to match the size of your hand. Adjust it so that the Start/Stop Button and the [W] and [T] Zoom Buttons can easily be pressed with the fingertips.

**32 Cassette Eject Button [EJECT]**
To insert or take out a video cassette, press this button.

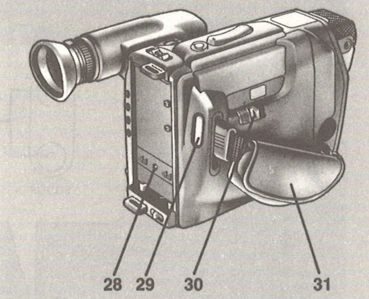
**33 Digital Mode Cover**

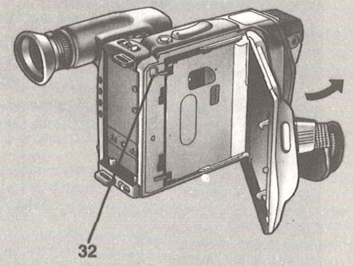
**34 Gain Button [GAIN UP]**
When shooting in the dark, the sensitivity can be increased in steps by pressing this button.

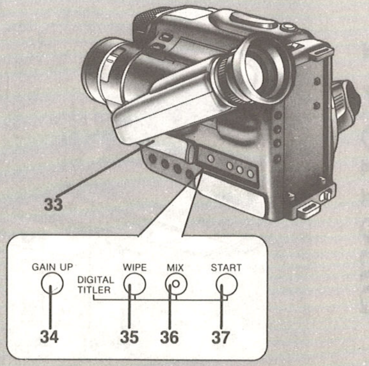
**35 Digital Wipe Button [WIPE]**
To perform Wipe Recording of a still picture, press this button.

**36 Digital Mix Button [MIX]**
To combine a still picture with the moving picture, press this button.

**37 Digital Start Button [START]**
To start the Digital Wipe Function or the Digital Mix Function, press this button.







## Controls and Functions (cont'd)

**38 Mode Selector Switch**

| | |
|---|---|
| AUTO: | This setting provides automatically focussed pictures with natural colours and brightness for almost any shooting condition. |
| MANUAL: | When automatic focusing is not possible or when you want to adjust the White Balance or the focus manually. |
| LOW LIGHT: | When shooting evening scenes and under other lowlight conditions. |

**39 Video Output Socket**
Connect this socket via Video output cable to the video input socket of the TV set (or the RF Adaptor) for playback directly from the Movie Camera.

**40 RF DC Output Socket**
Connect this socket with the RF Adaptor to supply it with power for playback directly from the Movie Camera.

**41 Audio Output Socket**
Connect this socket via audio cable with the audio input socket of the TV set (or the RF Adaptor) for playback directly from the Movie Camera.

**42 Eyepiece Corrector Ring**
Turn it clockwise or counterclockwise so that the indications in the Viewfinder are clearly focused.

**43 Eyecup**

**44 Viewfinder**
The subject in front of the camera can be seen on the viewfinder screen. Superimposed on the picture are indications about the operation and condition of the Movie Camera.
To be able to see the picture on the viewfinder screen with maximum magnification during shooting and playback, pull on the plastic ring behind the Eyecup to extend the Viewfinder.

**45 Cassette Compartment**
Insert a VHS-C or S-VHS-C compact video cassette into this compartment.

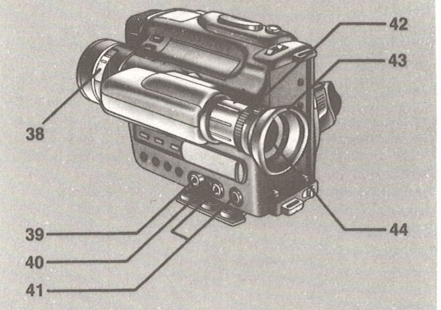
**46 External Microphone Socket**
If you want to use an external microphone, connect it to this socket (in this case, the built-in microphone will be deactivated).

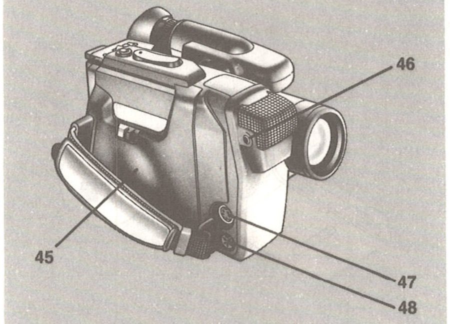
**47 S-Video Output Socket**
Connect the S-Video Cable to this socket if the TV set is equipped with an S-Video Input Socket.

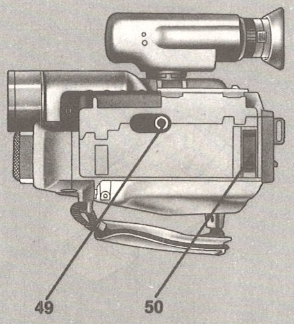
**48 New Edit Socket**
Connect an Editing Controller, etc. to this socket.

**49 Tripod Receptacle**
When using a tripod for stable shooting, attach the screw of the tripod to this receptacle.

**50 Button Type Battery Holder**
It holds the Button Type Battery (CR2032) that maintains the clock operation while the Movie Camera is turned off.







## Using the Battery Pack

### 1) Charge the Battery Pack

1 **Insert the upper end of the Battery Pack into the connector on the AC Adaptor as shown in the illustration.**

2 **Press the rear portion down until it locks with a click.**

3 **Connect the Power Cable of the AC Adaptor to the mains.**
- The Power Lamp ❶ lights up and several seconds later the Charging Lamp ❷ lights up, too.
- When the charging is completed, the Charging Lamp ❷ goes out.

**Note:**
When charging the Battery Pack, disconnect the DC Input Cable from the AC Adaptor.

**■ Charging Time and Maximum Time for Continuous Shooting**

| Battery Pack No. | VW-VBS1E Supplied | VW-VBS2E Optional | VW-VBR1E Optional | VW-VBR2E Optional |
|---|---|---|---|---|
| Charging time in minutes | 60 | 120 | 60 | 120 |
| Max. shooting time in minutes* | 50 | 100 | 50 | 100 |

*Continuous shooting using a fully charged Battery Pack at 25°C. In actual use, depending on the charging condition of the Battery Pack, the temperature, the actual operation during recording, etc., the possible recording time may be shorter.
Therefore, it is recommended to take along a charged spare Battery Pack.

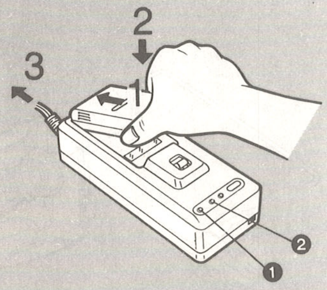
- The Battery Pack is charged after the time indicated in the table. However, the charging should be continued for a further 2 hours to achieve maximum operation time.

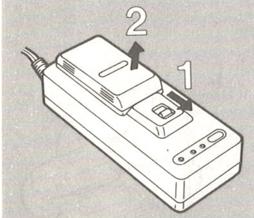
**■ To Eject the Battery Pack...**

1 **Slide the Battery Eject Lever in the direction of the arrow and...**

2 **Remove the Battery Pack.**

**Notes:**
The Battery Pack is shipped in discharged condition and must be charged before it can be used.
- Charge the Battery Pack within a temperature range of 10°C–35°C.





## *Using the Battery Pack (cont'd)*

■ **How to Use the Convenient Discharge→Charge Function**
If a Battery Pack is recharged repeatedly in not completely discharged condition, the so-called "memory effect" will occur, and the operation time of the recharged Battery Pack will gradually become shorter. Therefore, it is recommended to regenerate the Battery Pack after approx. every fifth recharging by using the convenient Discharge→Charge Function.

1 **Attach the Battery Pack to the AC Adaptor.**

2 **Connect the Power Cable of the AC Adaptor to the mains.**
- The Power Lamp ① lights up, and soon after, the Charging Lamp ② lights up.

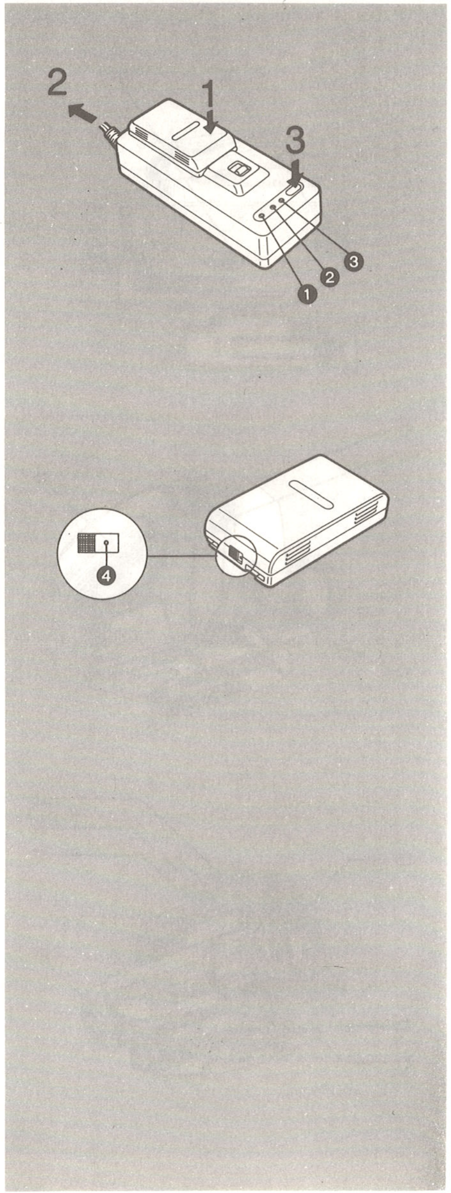
3 **Press the Discharge→Charge Button for more than 1 second.**
- The Discharge Lamp ③ lights up, and the Charge Lamp ② goes out.

■ **When the discharging is finished**, the Charge Lamp ② lights up instead, and the charging starts.

■ **When the charging is completed**, the Charging Lamp ② goes out.

- When using the Discharge→Charge Function, the charging takes five or six times as long as normal charging.

■ **How to Use the Charging Confirmation Marker**
This marker makes it convenient to distinguish between charged and discharged Battery Packs. For example, slide the knob so that the dot ④ is visible to mark a charged Battery Pack, and slide it so that the dot is not visible for a partially or fully discharged Battery Pack.



## *Using the Battery Pack (cont'd)*

### 2) Attach the Battery Pack to the Movie Camera.

■ **How to Attach the Battery Pack**

1 **Align the mark ① at the top of the Battery Pack with that on the Movie Camera ② and insert the Battery Pack with its upper part first.**

2 **Attach the Battery Pack until it locks with a click.**

■ **How to Remove the Battery Pack**

1 **Press and slide to "OFF".**

2 **After the image in the Viewfinder disappears, slide to the right and...**

3 **Pull off the Battery Pack.**

**Caution:**
- If the Battery Pack is removed during recording or playback, the tape remains wound around the video head cylinder and could become damaged.
  This is also the case during the loading and unloading of the tape.

## *Using the AC Adaptor or the Car Battery Cord (optional)*

■ **How to Use the AC Adaptor**

1 **Connect the DC Input Cable to the DC Input Socket on the Movie Camera.**

2 **Connect the other end of the cable to the DC Output Socket on the AC Adaptor.**

3 **Connect the Mains Cable of the AC Adaptor to the mains.**

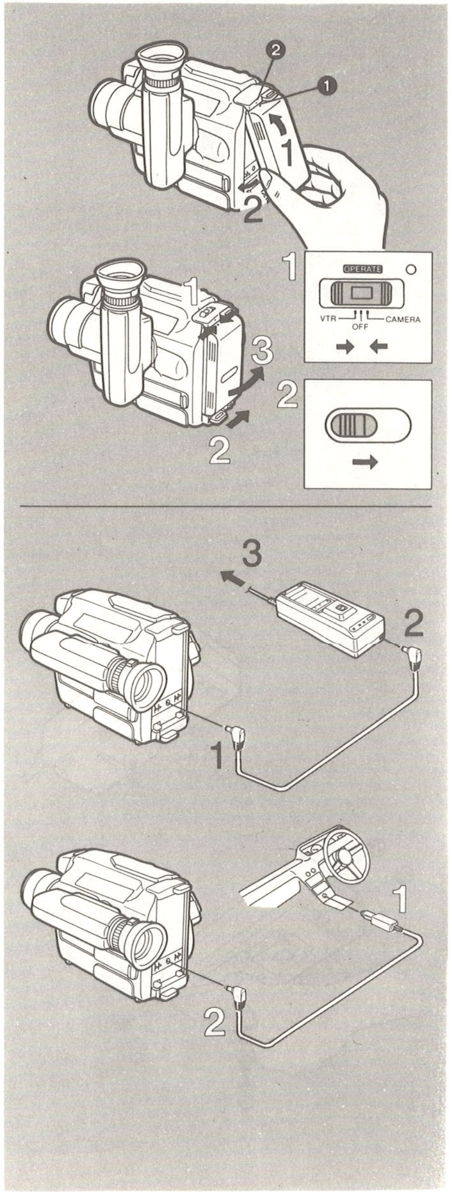
**Note:**
When the AC Adaptor is used to supply the Movie Camera with power, remove the Battery Pack from the AC Adaptor.

■ **How to Use the Car Battery Cord (optional)**

1 **Start the engine and then plug the Car Battery Cord into the Cigarette Lighter Socket.**

2 **Connect the other end of the cord to the DC Input Socket on the Movie Camera.**

**Notes:**
- The Car Battery Cord can only be used with 12 V DC negative-grounded vehicles.
- Do not start the car engine while the Movie Camera is powered by the car battery.



## *Setting the Clock*

### 1) Insert the Button Type Battery

**■ How to Insert the Button Type Battery**

The "CR2032" size Button Type Battery is necessary for storing the date, time and selected tape speed in the memory, when the Movie Camera is turned off.

1 **Turn the Movie Camera upside down.**

2 **Push the two stoppers ① toward each other and pull out the Battery Holder ②.**

3 **Install the Battery with the (+) mark facing downward until it locks with a click.**

4 **Insert the Battery Holder back into the Movie Camera until it locks.**

- If the Button Type Battery is not inserted or if it is exhausted, the Indication "BACKUP" in the Viewfinder flashes for approx. 10 seconds when turning the Movie Camera on.

**■ How to Exchange the Button Type Battery**

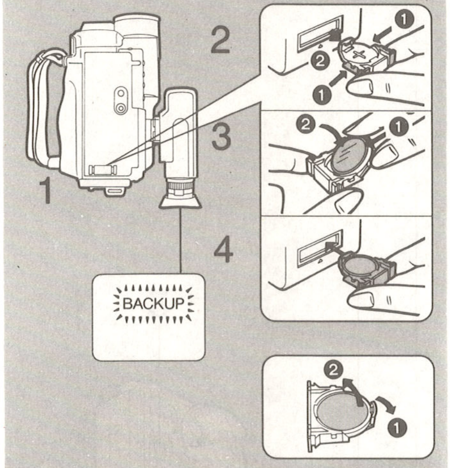
- Use only a "CR2032" size Button Type Battery.
- The CR2032 is manufactured by Panasonic only.

**Note:**

- If the Date and Time Indications in the Viewfinder are no longer correct after replacing the Button Type Battery, set the date and time as explained on page 26.

**CAUTIONS FOR BATTERY REPLACEMENT**

- The life of the battery is about one year. Inspect, and if necessary, replace the Battery once a year.
- Load the new battery with its polarities (+ and −) correctly aligned.
- Remove the spent battery immediately and dispose of it.
- Do not try to short-circuit, recharge or heat the battery and do not throw it into a fire.
- Keep the button-type battery out of reach of children. If a battery has been swallowed, consult a doctor immediately.
- Do not grasp the button-type battery with metallic tweezers because this could short-circuit it.



## *Setting the Clock (cont'd)*

### 2) Set the Date and Time

**■ How to Set the Date and Time**

1 **Press and slide to "CAMERA".**

2 **Press.**

3 **Keep pressed for more than 2 seconds.**

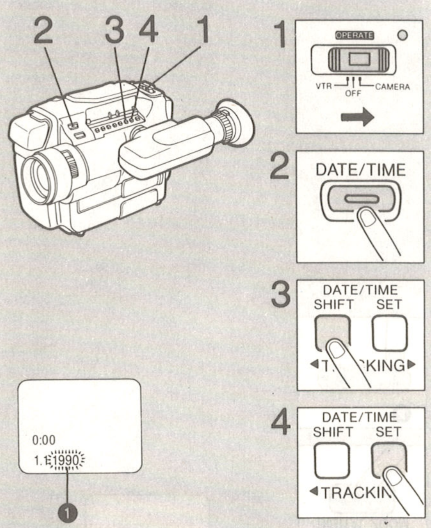
- The year portion ① of the Date/Time Indication starts to flash.
- The flashing portion of the Date/Time Indication can be changed with the [SHIFT] Button in the following order:

→Year→Month→Day→Hour→Minute→" " →

4 **Press to change the figures.**

Year: **1990**→1991→ ............ →2089→**1990**→...
Month: 1→2→ .......................... →12→1→...
Day: 1→2→ .......................... →31→1→...
Hour: 00→1→ ........................ →23→0→...
Minute: **00**→01→ ...................... →59→**00**→...

- **Repeat procedures 3 and 4 until all items have been set correctly.**
- Once the date and time are set, press the [SHIFT] Button in response to an accurate time source so that the clock begins to function.



## *Shooting with the Digital Image Stabilizer Function*

This function automatically corrects the slight shaking of the camera that often occurs during hand-held camera shooting and zooming.
It is especially practical for the following shooting situations:
- Zooming in on a distant subject.
- Shooting while walking.
- Shooting from inside a moving car.

### 1 Press.

The Image Stabilizer Function is activated with the [I. STABILIZER] Button.
- When the Image Stabilizer Function is activated, the Indications ❶ (Image Stabilizer Indication "🖐" and Shutter Speed Indication "1/120") appear in the Viewfinder.

### 2 Press.

- The recording starts.

■ **To Cancel this Function...**
Press the [I. STABILIZER] Button.

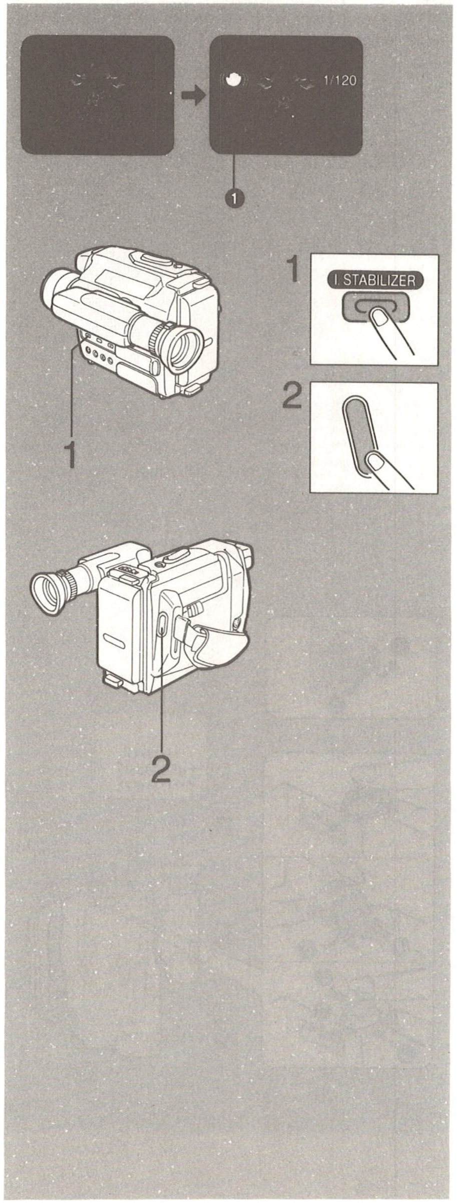
**Note:**
- The subject appears slightly enlarged in the Viewfinder and the shutter speed is set to 1/120 second (the "1/120" Indication in the Viewfinder is displayed) instead of the normal 1/50 second (for which there is no indication).

**Notes on Shooting with the Image Stabilizer Function**

■ **Shooting Conditions...**
- The picture stabilizing effect may not be sufficient, if the shaking of the Movie Camera is very strong, or in the following shooting conditions:
  —A subject with horizontal or vertical stripes.
  —An extremely bright subject.
  —A subject under many fluorescent lamps.
  —A fast-moving subject.
- When shooting under fluorescent light, the brightness of the picture may fluctuate.
- The resolution of the picture will be slightly reduced.

■ **Shooting with the High-Speed Shutter...**
- If the [SHUTTER] Button is pressed to change the shutter speed while the Movie Camera is in the Image Stabilizer Mode, the shutter speed will remain at this setting when the Image Stabilizer Mode is canceled.

■ **Shooting with a Tripod...**
- When shooting with a tripod, do not use the Image Stabilizer Function.



## *Shooting with the Zoom Function*

### Using the Power Zoom and Digital Zoom Functions

■ **How to Zoom in ❶ or out ❷**
**(Using the Power Zoom Function)**

To make your zoom shots more impressive and to achieve exactly the desired effect, do it like the professionals: before actually shooting, make a trial run of the zooming.

### 1 Keep pressed for telephoto. (subject appears closer ❶)

### Keep pressed for wide-angle. (subject appears further away ❷)

**(Using the Digital Zoom Function)**
The Digital Zoom Function makes it possible to zoom in on a subject and enlarge it by up to 16 times by using the [T] Zoom Button and the [DIGITAL ZOOM] Button.

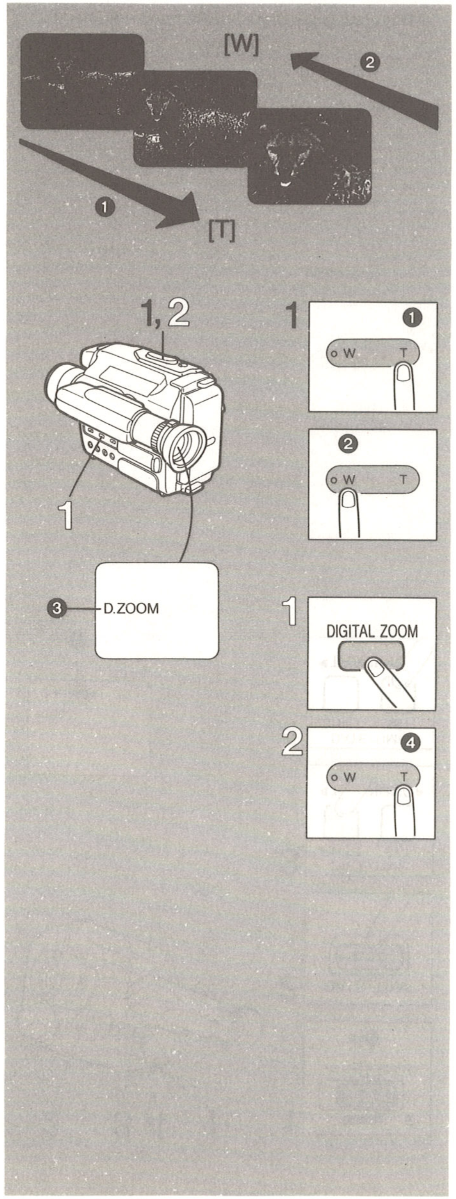
### 1 Press.

- When the Digital Zoom Function is activated, the "D. ZOOM" Indication ❸ appears in the Viewfinder.

### 2 Press ❹.

■ **To Cancel this Function...**
Press the [DIGITAL ZOOM] Button.

- When the Digital Zoom Function is turned off, the zoom range is limited to ×8.
- When the Digital Zoom Function is activated, the picture is magnified electronically and the zoom range is increased to ×16.
- The Digital Zoom Function slightly decreases the picture resolution and fine picture details.
- When zooming in on a subject all the way to the maximum tele position, slight after-image distortion may occur.
- When zooming in the extreme tele range (near the 16× setting, using the Digital Zoom) while the Image Stabilizer Function is activated, slight after-image distortion may occur.
  When shooting under very bright conditions, the after-image can be eliminated by selecting a shutter speed of 1/250 or 1/500 sec.



## *Shooting Landscapes at Dusk or Other Evening Scenes*

### Using the Lowlight Function

**1 Set the Mode Selector Switch to "LOW LIGHT".**

- This increases the sensitivity compared to the "AUTO" or "MANUAL" setting of the Mode Selector Switch and assures stable images with relatively weak contrast.

**Note:**

- Even if this mode is used for outdoor shooting in the daytime, the result will be almost the same as when the Mode Selector Switch is set to "AUTO" or "MANUAL".
- When using the Image Stabilizer Function while shooting a dark scene with the Mode Selector Switch set to "LOW LIGHT", the Image Stabilizer Indication "(✋)" will flash to warn that the Image Stabilizer Function may not work correctly.

## *Shooting Backlit Scenes*

### Using the Iris Adjustment Function

This function is effective when shooting a backlit scene.

**1 Set the Mode Selector Switch to "MANUAL".**

**2 Press either Button.**

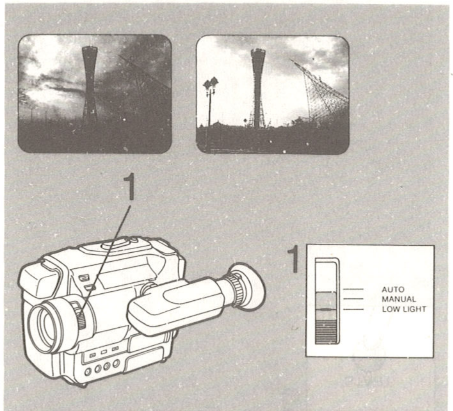
- The "M. IRIS" Indication appears.
- At every press of the [IRIS OPEN] Button, the brightness of the picture increases by 3 steps.
- At every press of the [IRIS CLOSE] Button, the brightness of the picture decreases by 3 steps.

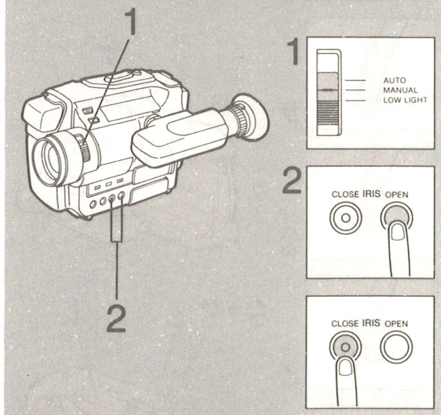
**■ To Return to the Standard Iris Setting...**

- Press the [IRIS OPEN] Button and [IRIS CLOSE] Button simultaneously for more than 1 second.
- Returning to the standard iris setting is also possible by setting the Mode Selector Switch to "AUTO".

**Cautions for Shooting Backlit Subjects**

- The sky may become whitish.
- In case of extremely strong backlight, it may not be possible to brighten up the subject sufficiently.
- When shooting with the sun striking the subject at an angle, star-shaped light reflexes may be recorded in the picture.





## *Shooting in the Dark*

### Using the High Sensitivity Function

**1 Slide the Cover to the left until it locks with a click.**

- The Movie Camera is now in the Digital Mode.

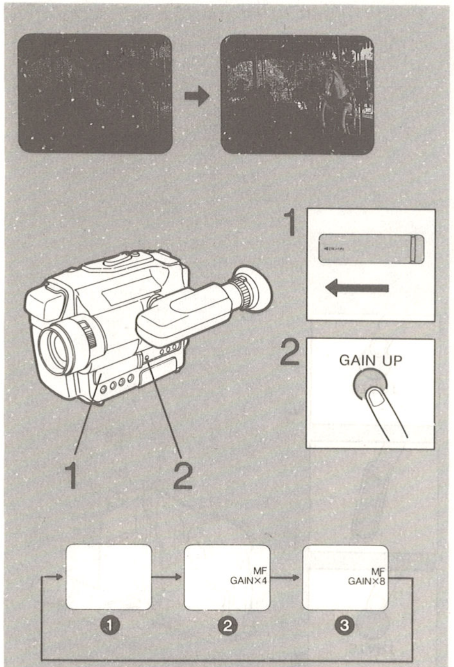
**2 Press.**

- By pressing the [GAIN UP] Button repeatedly, the degree of the sensitivity can be changed as follows:

→No indication→GAIN ×4→GAIN ×8
❶ ❷ ❸

**Notes:**

- Some after-image distortion will occur.
- When the Digital Mode is activated, the [I. STABILIZER] Button, [DIGITAL ZOOM] Button, [SNAPSHOT REC] Button and [STILL/STROBE] Button do not work.
- When the High Sensitivity Function is activated, the Digital Wipe Function and the Digital Image Mix Function do not work.
- While recording a still picture in the Digital Wipe Mode or in the Digital Image Mix Mode, or while these modes are activated, the High-Sensitivity Function does not work.
- The High-Speed Shutter Function will be canceled automatically.
- In the High-Sensitivity Mode, the focus must be adjusted manually since the Movie Camera is automatically put into the Manual Focus Mode.



## *Inserting a Still Picture with Wipe Editing*

### Using the Digital Wipe Function

**Inputting a Still Picture into Memory**
When the Movie Camera is in the shooting pause mode:

1 **Slide the Cover to the left until it locks with a click.**
- The Movie Camera is now in the Digital Mode.

2 **Press.**
- Press this button while aiming the Movie Camera at the scene to be used for the still picture.
- The image in the Viewfinder stands still for approx. 2 seconds and this still picture is input into memory.

**Starting to Shoot a Scene with the Still Picture**
In the shooting pause mode:

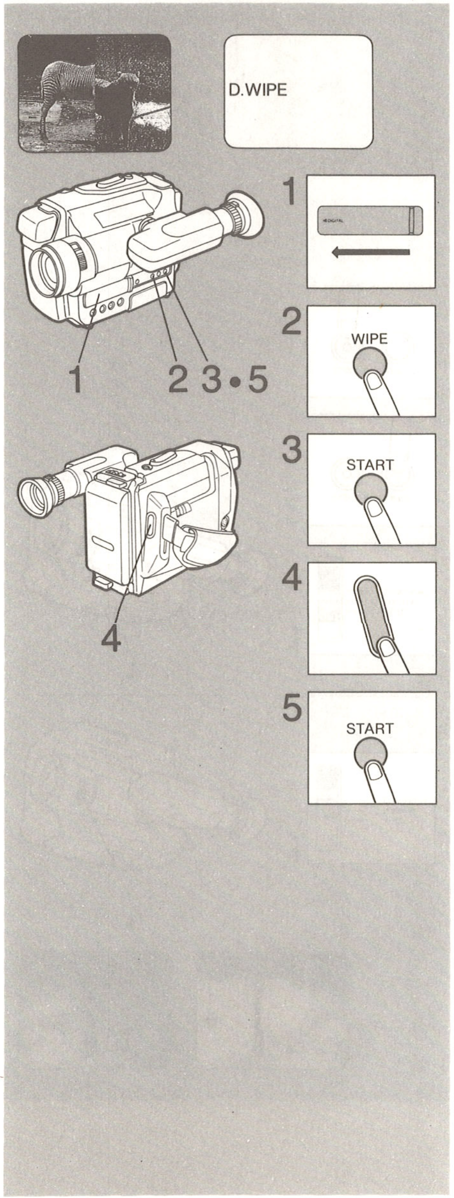
3 **Press.**
- The still picture from the memory replaces the moving picture gradually, starting from the left side.
- The Movie Camera should be aimed at the scene, which is to be shot following the recording of the still picture.

4 **Press.**
- The still picture from the memory is now being recorded.

5 **Press again.**
- The moving picture again replaces the still picture gradually, starting from the right side, and the shooting of the moving picture continues.

■ **Canceling the Digital Wipe Function**
Slide the Digital Mode Cover fully toward the right.

**Notes:**
- When the Digital Mode is activated, the [I. STABILIZER] Button, [DIGITAL ZOOM] Button, [SNAPSHOT REC] Button and [STILL/STROBE] Button do not work.
- While recording a still picture in the Digital Image Mix Mode, or while this mode or the High-Sensitivity Function is activated, the Digital Wipe Function does not work.
- The still picture will only be stored in memory for as long as the "D.WIPE" or "D.MIX" Indication is lit in the Viewfinder.
  The indication goes out and the still picture is no longer stored in memory when:
  —the Camera Recorder is turned off.
  —the [GAIN UP] Button is pressed.
  —the Digital Mode Cover is slid backward.



## *Fading Over or Superimposing a Still Picture onto the Moving Picture*

### Using the Digital Image Mix Function

**Inputting a Still Picture into Memory**
When the Movie Camera is in the shooting pause mode:

1 **Slide the Cover to the left until it locks with a click.**
- The Movie Camera is now in the Digital Mode.

2 **Press.**
- Press this button while aiming the Movie Camera at the scene to be used for the still picture.
- The image in the Viewfinder stands still for approx. 2 seconds and this still picture is input into memory.

**Starting to Shoot a Scene with the Still Picture**
In the shooting pause mode:

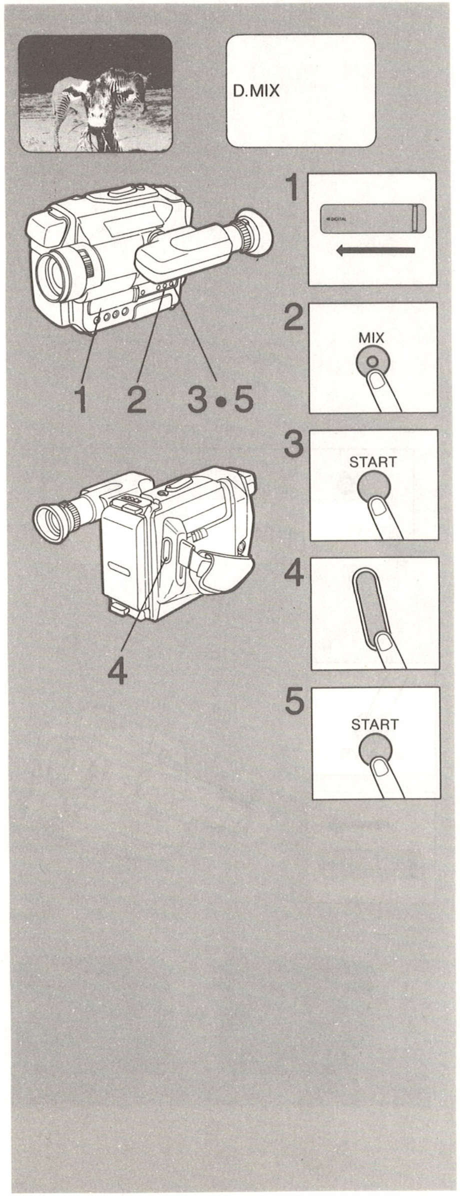
3 **Press.**
- The still picture from the memory replaces the moving picture gradually.
- If this button is pressed for 2 seconds, the still picture appears superimposed onto the moving picture.
- The Movie Camera should be aimed at the scene, which is to be shot following the recording of the still picture.

4 **Press.**
- The still picture from the memory is now being recorded.

5 **Press again.**
- The moving picture again replaces the still picture gradually, and the shooting of the moving picture continues.
- If the [MIX] Button was pressed for 2 seconds to superimpose the still picture, the superimposed still picture will disappear, and the shooting of the moving picture alone continues.

■ **Canceling the Digital Mix Function**
Slide the Digital Mode Cover fully toward the right.

**Notes:**
- When the Digital Mode is activated, the [I. STABILIZER] Button, [DIGITAL ZOOM] Button, [SNAPSHOT REC] Button and [STILL/STROBE] Button do not work.
- While recording a still picture in the Digital Image Wipe Mode, or while this mode or the High-Sensitivity Function is activated, the Digital Mix Function does not work.



## *Playback via a TV Set (Connections)*

### Using the Supplied AV Output Cable

**■ Playback via a TV Set with AV Input Socket**
●Turn off the Movie Camera and the TV set.

### 1 Open the Socket Cover.

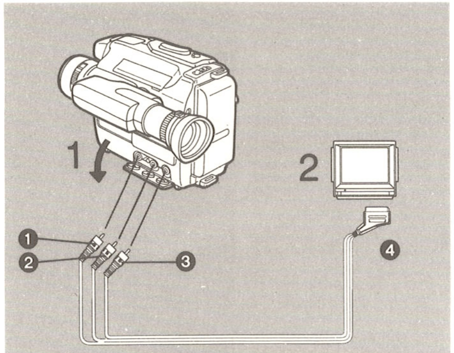
### 2 Connect the Movie Camera to the TV set.

(AV Output Cable is supplied.)

**Movie Camera** **TV Set**

Video Output Socket ① → AV Input Socket ④
Audio Output Socket (L) ② → AV Input Socket ④
Audio Output Socket (R) ③ → AV Input Socket ④

**■ Activate the Playback Operation**



### Using the Supplied S-Video Cable

**■ Playback via a TV set with S-Video Input Socket**
●Turn off the Movie Camera and the TV set.

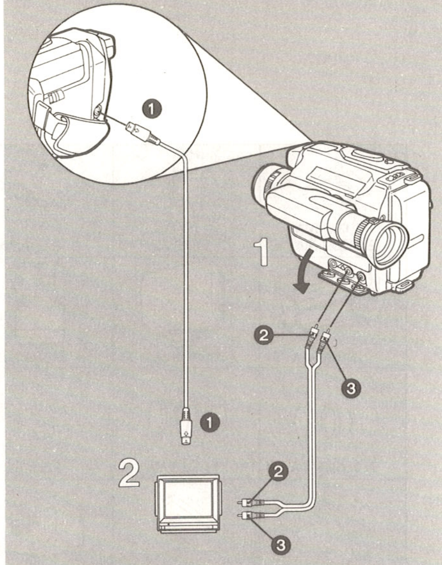
### 1 Open the Socket Cover.

### 2 Connect the Movie Camera to the TV set.

(S-Video Cable and Audio Cable are supplied.)

| Movie Camera | | TV Set |
|---|---|---|
| S-Video Output Socket ① | ←→ | S-Video Input Socket ① |
| Audio Output Socket (L) ② | ←→ | Audio Input Socket (L) ② |
| Audio Output Socket (R) ③ | ←→ | Audio Input Socket (R) ③ |

**■ Activate the Playback Operation**



## *Playback via a TV Set (cont'd)*

### Using the RF Adaptor (optional)

**■ Playback via a TV Set without AV Socket**
●Turn off the Movie Camera and the TV set.

### 1 Open the Socket Cover.

### 2 Connect the Movie Camera to the TV set.

**Movie Camera** ←① → **RF Adaptor** **TV Set**
② RF OUT ← ② RF IN
③ RF IN
↑
**Antenna**

### 3 Set the PAL System Selector Switch to the correct position.

●Set to "G" for continental Europe. If set to the wrong position, the sound will be muted.
●Set to "I" for the UK.

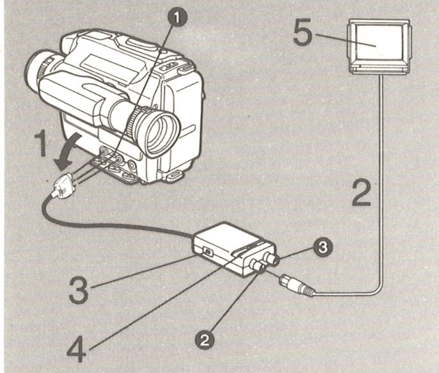
### 4 Set the TV/VTR Selector Switch on the RF Adaptor to:

VTR: For playing back a video cassette.
TV: For watching TV.

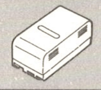
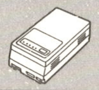
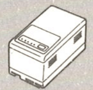
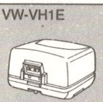
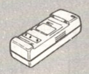
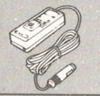
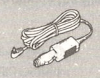
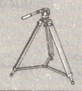
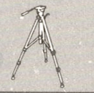
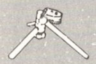
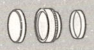
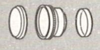
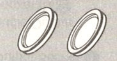
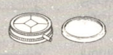
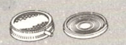
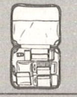
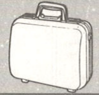
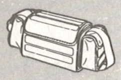
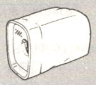
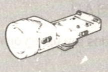
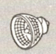
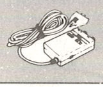
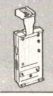
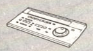
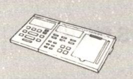
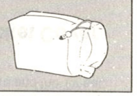
### 5 Select an unused TV programme position (channel).

●Follow the tuning procedure outlined in the instruction booklet for your TV set to re-tune your TV set to the UHF transmission channel 36. The camera picture now appears on the TV screen.
●If in doubt, consult your local video dealer.

**■ Activate the Playback Operation.**

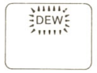
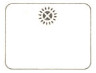
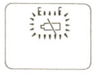
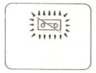
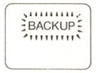
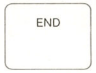
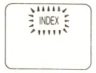


## Optional Accessories

| | | | | | |
|---|---|---|---|---|---|
| 1. VW-VBS2E<br> | 2. VW-VBR1E<br> | 3. VW-VBR2E<br> | 4. VW-VH1E<br> | 5. VW-BCS1E<br> | 6. VW-KBCS1E<br> |
| 7. VW-ACC11E<br> | 8. VZ-CT75E<br> | 9. VZ-CT55E<br> | 10. VZ-CTT1E<br> | 11. VW-LT3714E<br> | 12. VW-LW3707E<br> |
| 13. VW-LF37E<br> | 14. VW-LFA37E<br> | 15. VW-LFB37E<br> | 16. VW-TKS1E<br> | 17. VW-SHCS5E<br> | 18. VW-SBS5E<br> |
| 19. VW-RCS9E<br> | 20. VZ-LDS15E<br> | 21. VZ-LL15E<br> | 22. VW-RF7E<br> | 23. VW-SK8E<br> | 24. VW-EC300E<br>VW-EC310E<br> |
| 25. VW-EC10E<br> | 26. VW-SCS9E<br> | | | | |

1. Battery Pack
2. Battery Pack with Remaining Battery Power Indicators
3. Battery Pack with Remaining Battery Power Indicators
4. Battery Pack Holder
5. Battery Charger
6. Car Battery Charger
7. Car Battery Cord
8. Deluxe Tripod
9. Standard Tripod
10. Table Tripod
11. Tele Conversion Lens
12. Wide Conversion Lens
13. Filter Kit
14. Special Effect Filter Kit (A)
15. Special Effect Filter Kit (B)
16. Travel Kit
17. System Case
18. Soft Bag
19. Rain Cover
20. Video DC Light
21. Replacement Bulb for DC Light
22. RF Adaptor
23. Shoe Adaptor
24. Editing Controller
25. VITC Editing Controller
26. Soft Cover

## Warning/Alarm Indications in the Viewfinder

| Viewfinder | | | Sucher | | Viseur électronique | |
|---|---|---|---|---|---|---|
| ❶<br><br> | ❷<br> | ❸<br><br> | ❹<br> | ❺<br><br> | ❻<br><br> | ❼<br><br> |

These indications are displayed in the Viewfinder to inform you about the conditions of the Movie Camera.

❶ When condensation has formed inside the Movie Camera, the "DEW" Indication flashes and a few seconds later, the Movie Camera will turn itself off.
Press the [EJECT] Button, remove the video cassette and wait until the "DEW" Indication disappears.

❷ Video Head Clogging.
Consult qualified service personnel.
(See page 101.)

❸ The "–" Indications begin to disappear one after another as the power of the Battery Pack weakens.
When the last bar has disappeared, the Battery Indication "◁⊐" will flash.
Replace with a fully charged Battery Pack.
When a newly charged Battery Pack is inserted, this indication initially always shows "E--F", regardless of the Battery Pack's charging condition.

❹ There is no video cassette inside, or the tab of the inserted video cassette is broken out.
The indication flashes to warn that shooting is not possible. Insert a video cassette with intact tab. If the tab is broken out, seal the hole with adhesive tape.

❺ When the Button Type Battery (for the Auto Date Function, etc.) is not inserted, or when it is exhausted, this indication will flash for 10 seconds after the Movie Camera has been turned on.
Insert a new Button Type Battery (CR2032).

❻ During shooting: The tape has reached its end. Replace the video cassette with a new one whose tab is intact. If the video cassette is partly recorded, confirm the amount of available recording time by using the Remaining Tape Time Indication.

❼ It appears briefly while an index signal is being recorded.

# SECTION 2
# ADJUSTMENT PROCEDURES

## 2-1. DISASSEMBLY PROCEDURES

### 2-1-1. DISASSEMBLY FLOW CHART

The following flowchart describes the order or steps for removing cabinet parts and certain printed circuit boards to make accessable the items needing service.
To reassemble the unit, follow the steps in reverse order.

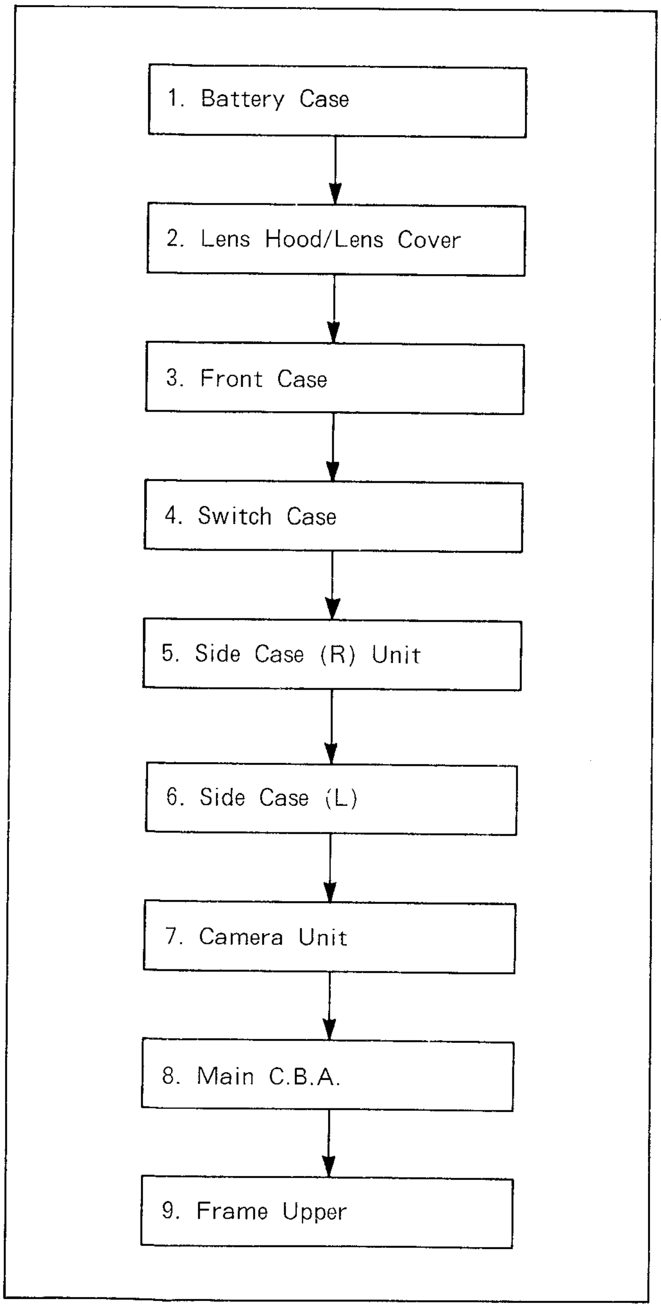

1. Battery Case
2. Lens Hood/Lens Cover
3. Front Case
4. Switch Case
5. Side Case (R) Unit
6. Side Case (L)
7. Camera Unit
8. Main C.B.A.
9. Frame Upper

Fig. D1

### 2-1-2. DETAILED DISASSEMBLY METHOD

1. Removed of Battery Case

2. Removed of Lens Hood/Lens Cover
   1) Rotate lens Hood to counter-clockwise and Remove it.
   2) Remove lens cover.
   3) Remove.....Screw A.

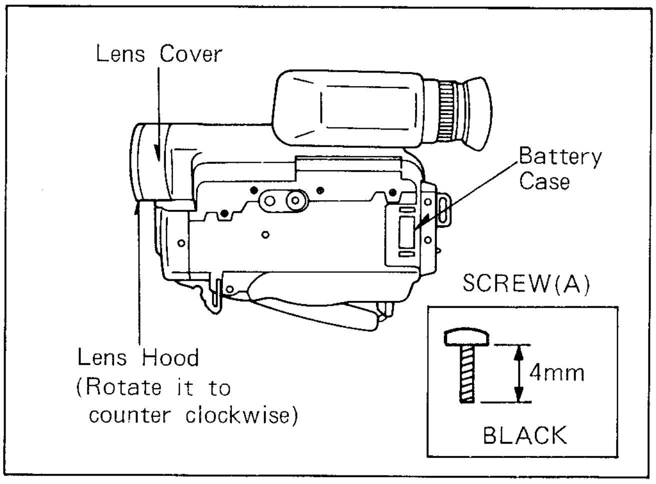

Lens Cover
Battery Case
SCREW(A)
4mm
BLACK
Lens Hood
(Rotate it to
counter clockwise)

Fig. D2

3. Removal of Front Case

Remove.....5 screws
Disconnect.....Mic Connector

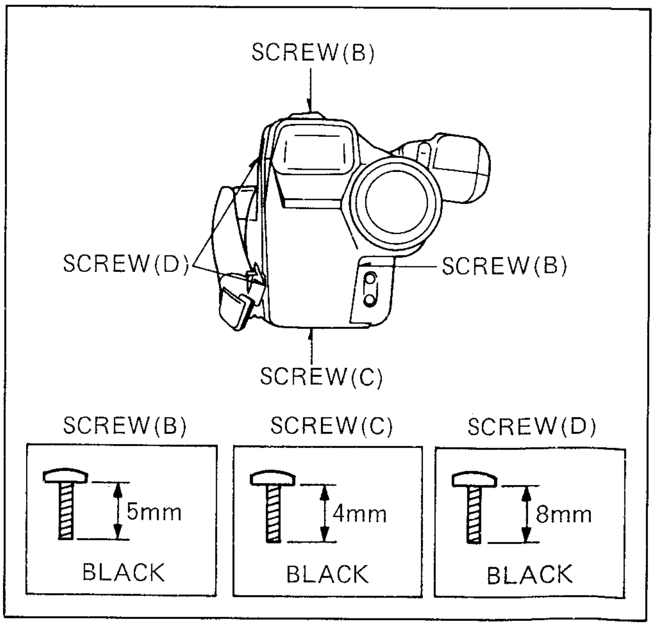

SCREW(B)
SCREW(D)
SCREW(B)
SCREW(C)
SCREW(B)
5mm
BLACK
SCREW(C)
4mm
BLACK
SCREW(D)
8mm
BLACK

Fig. D3

### 4. Removal of Switch Case

Remove.....2 screws

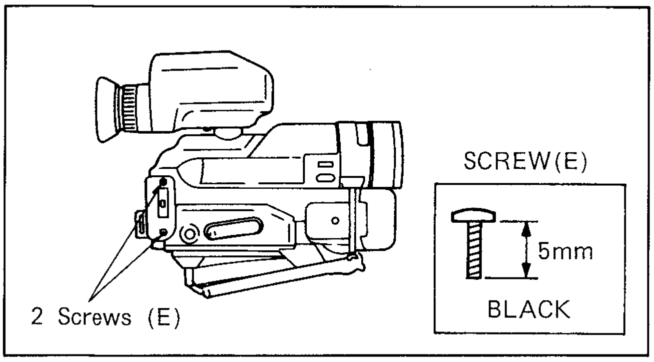

SCREW(E)
5mm
BLACK
2 Screws (E)

Fig. D4

### 5. Removal of Side Case (R)

Remove.....6 screws
Disconnect.....2 flexible cable

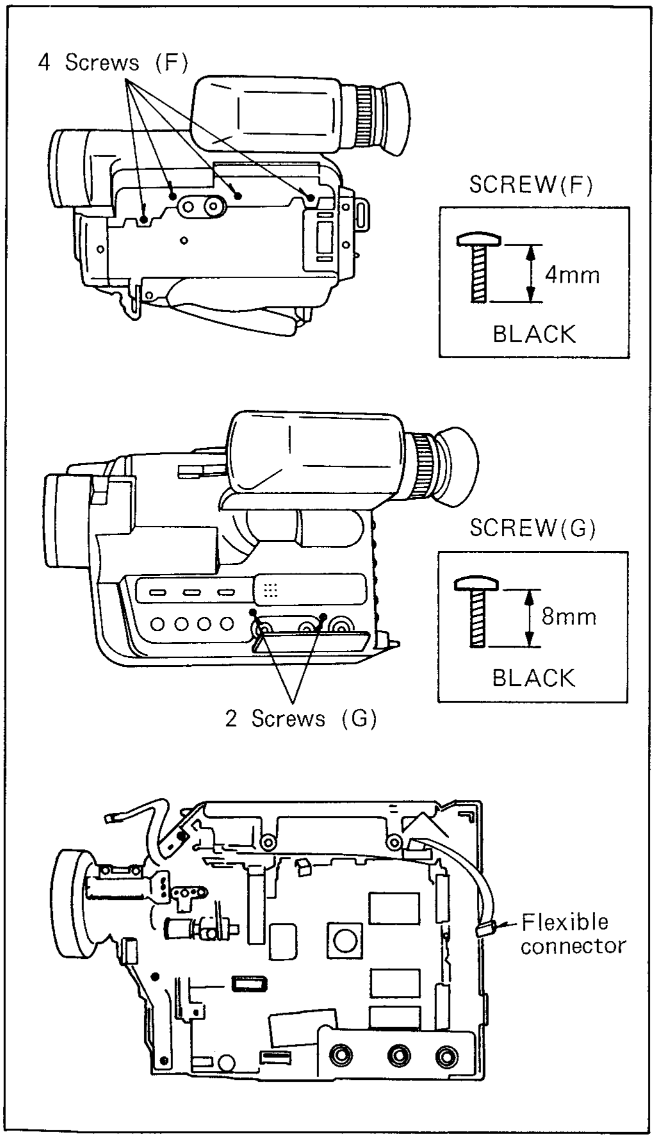

4 Screws (F)
SCREW(F)
4mm
BLACK
SCREW(G)
8mm
BLACK
2 Screws (G)
Flexible connector

Fig. D5

### 6. Removal of Side Case (L)

(1) Remove.....5 screws.
(2) Disconnect...1 direct connected connector

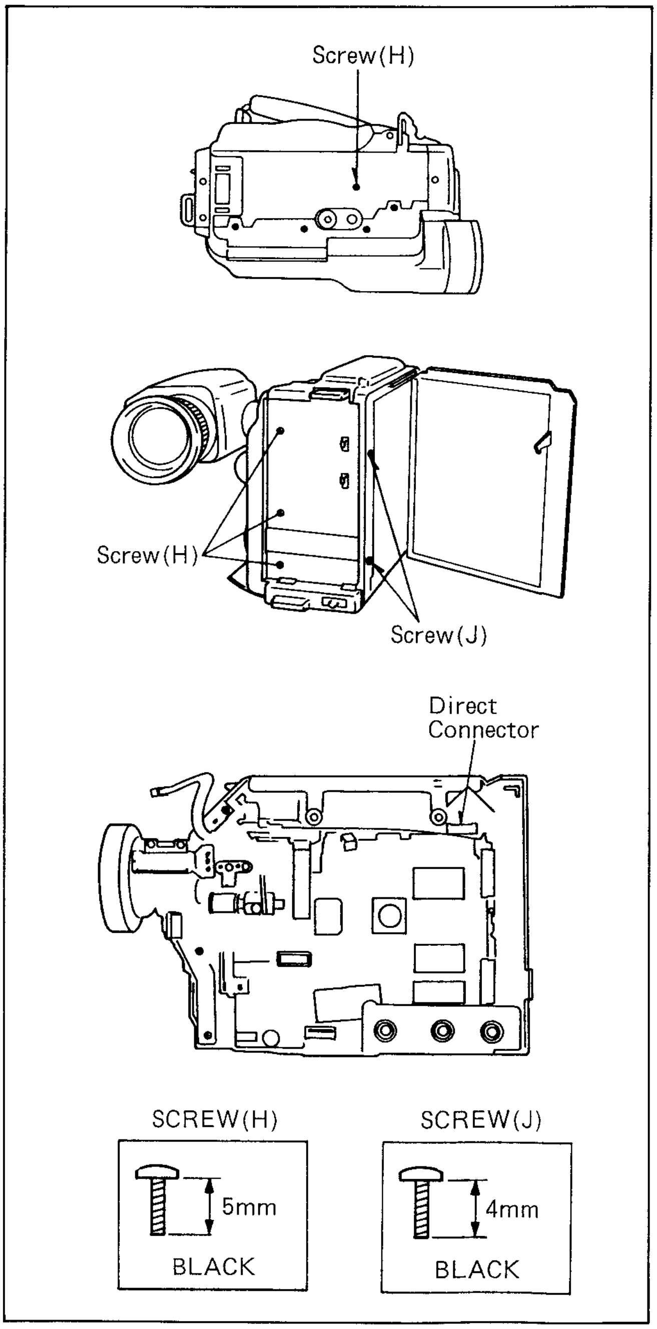

Screw(H)
Screw(H)
Screw(J)
Direct Connector
SCREW(H)
5mm
BLACK
SCREW(J)
4mm
BLACK

Fig. D6

### 7. Removal of Camera Unit

1) Remove.....3 screws.
2) Disconnect.....2 Flexible connectors.

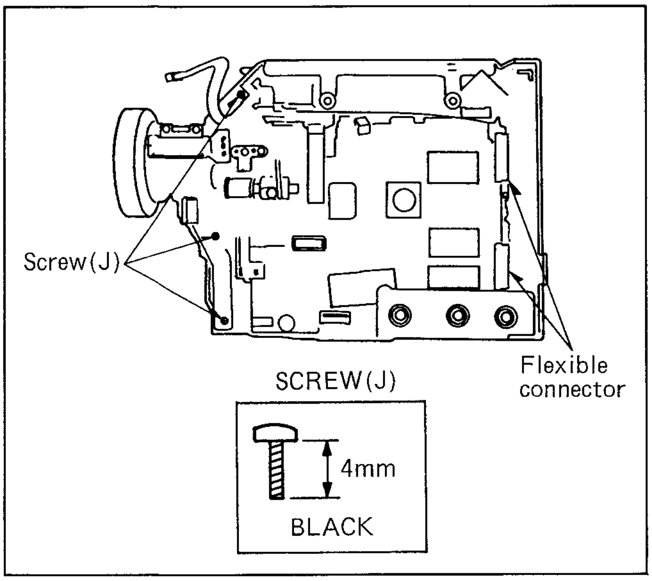

Screw(J)
Flexible connector
SCREW(J)
4mm
BLACK

Fig. D7

8. Removal of Main C.B.A.
   1) Remove.....4 screws.
   2) Disconnect... 6 Flexible connectors.
      1 Direct connectors.
      (Between Power C.B.A. and Main C.B.A.)
   3) Disconnect... 1 Direct connector.
      (Lift up the C.B.A.)
   4) Slide the Main C.B.A. to arrow mark direction and remove it.

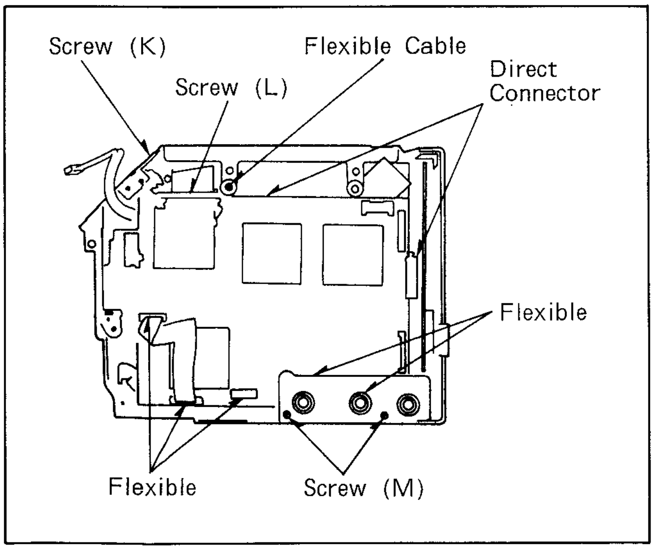

Screw (K)
Flexible Cable
Screw (L)
Direct Connector
Flexible
Flexible
Screw (M)

Fig. D8

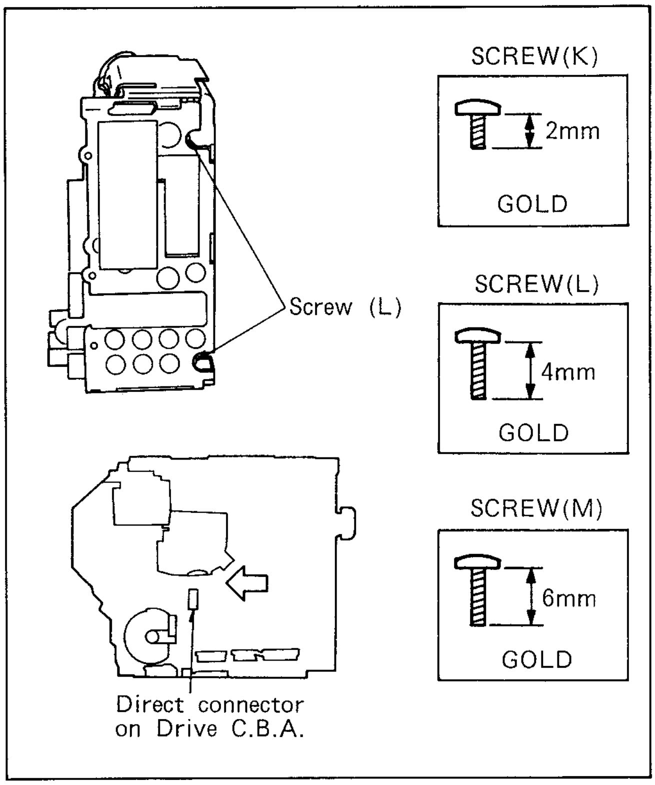

SCREW(K)
2mm
GOLD
Screw (L)
SCREW(L)
4mm
GOLD
SCREW(M)
6mm
GOLD
Direct connector on Drive C.B.A.

Fig. D9

9. Removal of Main Flame
   1) Remove.....4 Screws.

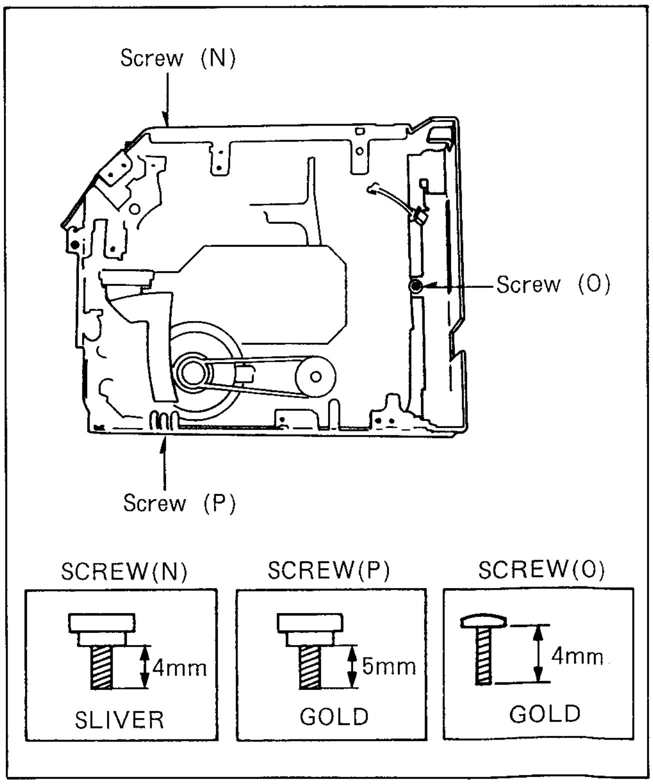

Screw (N)
Screw (O)
Screw (P)
SCREW(N)
4mm
SLIVER
SCREW(P)
5mm
GOLD
SCREW(O)
4mm
GOLD

Fig. D10

## 2-2. DISASSEMBLY PROCEDURES OF MECHANISM

**1. Removal of Cassette Holder Unit.**

(1) Unsolder following flexible connectors on the bottom side.

(1) FLEXIBLE CONNECTOR TO SUPPLY PHOTO TR.
(2) FLEXIBLE CONNECTOR TO TAKE UP PHOTO TR.
(3) FLEXIBLE CONNECTOR TO LOADING MOTOR.
(4) FLEXIBLE CONNECTOR TO SENSOR LED.

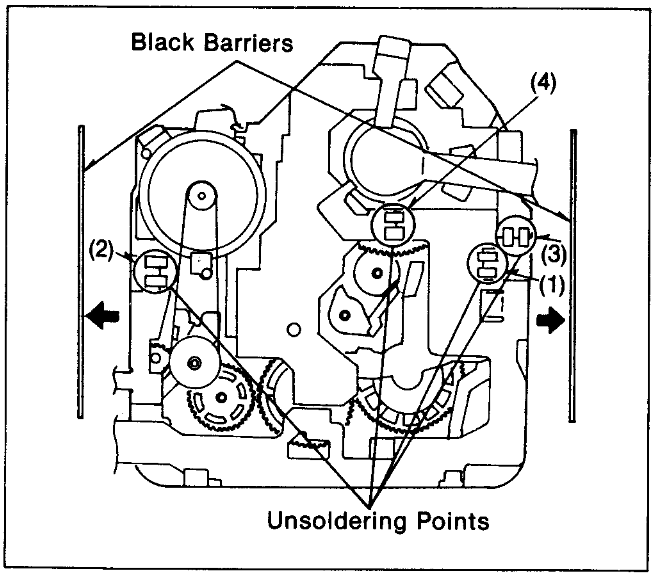

Black Barriers
(4)
(2)
(3)
(1)
Unsoldering Points

Fig. M1

(2) Remove 4 red screws indicated below.

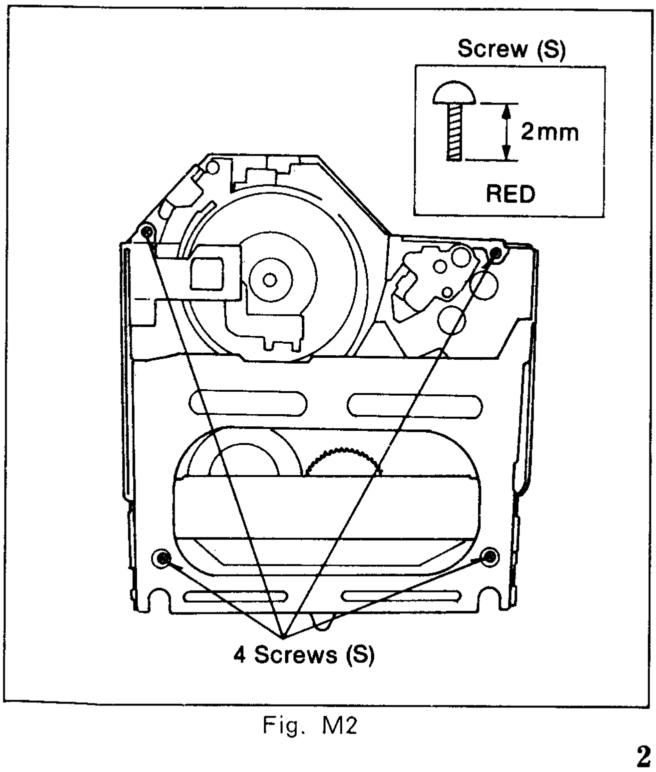

Screw (S)
2mm
RED
4 Screws (S)

Fig. M2

(3) Release Eject Lock Lever and take out Cassette Holder Unit.

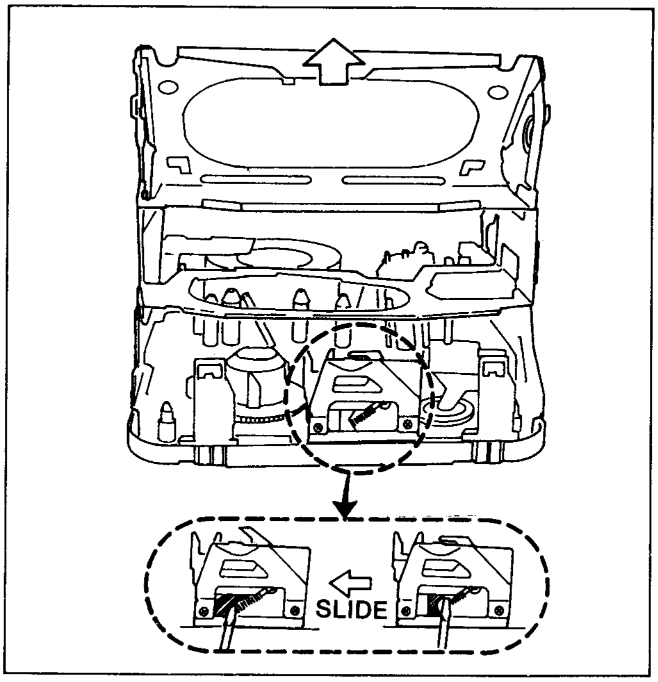


Fig. M3

2. REMOVAL OF DD CYLINDER UNIT.

Note: *
Upper Cylinder Unit is not replaceable on it's own. So only DD Cylinder Unit is available for ordering service parts.

(1) Remove RT (Rotary Transformer) Connector by using a screw driver.
(2) Remove 3 screws to take out DD Cylinder Unit.

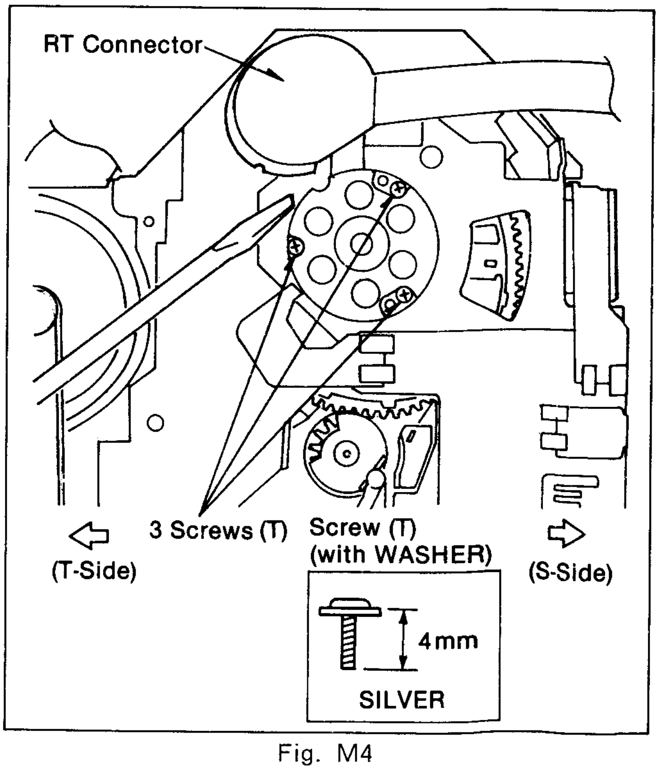

RT Connector
3 Screws (T)
Screw (T)
(with WASHER)
(T-Side)
(S-Side)
4mm
SILVER

Fig. M4

## 3. REMOVAL OF S-RAIL UNIT, LOADING MOTOR UNIT & TENSION REGULATOR UNIT.

(1) Move tape loading Posts(S1, T1 and T2) half way in the tape loading direction by applying 1.5DC to Loading Motor.

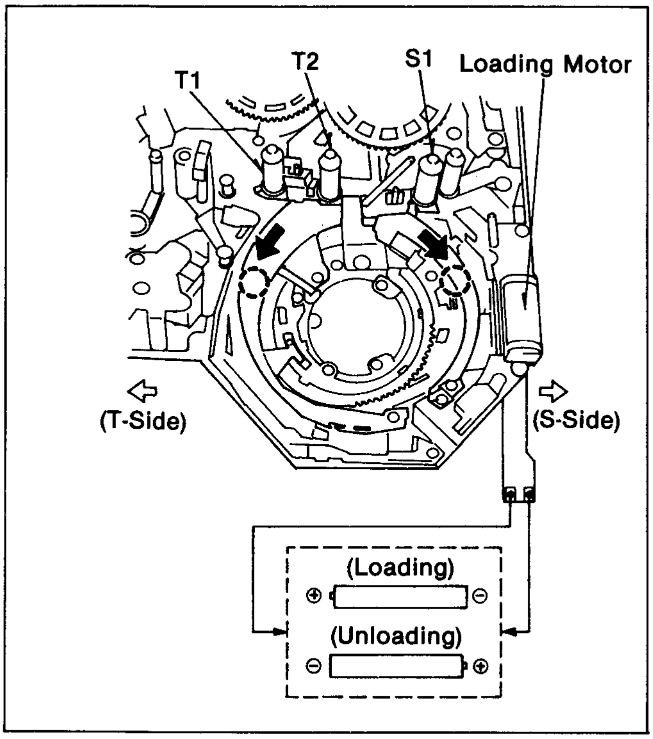

T1
T2
S1
Loading Motor
(T-Side)
(S-Side)
(Loading)
⊕
⊖
(Unloading)
⊖
⊕

Fig. M5

(2) Remove 2 screws and take out S-Rail Unit.

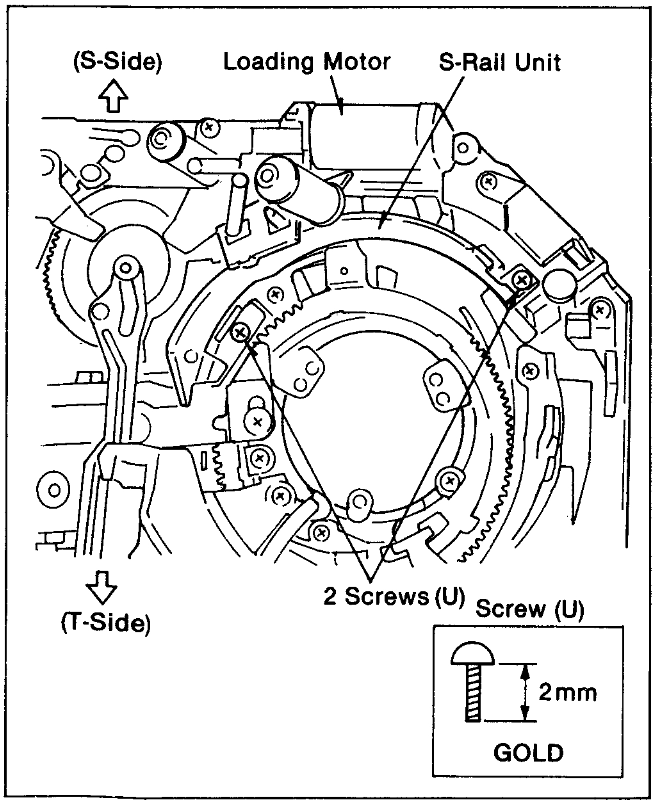

(S-Side)
Loading Motor
S-Rail Unit
(T-Side)
2 Screws (U)
Screw (U)
2mm
GOLD

Fig. M6

(3) Remove 2 screws (Slightly move Loading Posts in the unloading direction.) and take out Loading Motor Unit.

(4) Unhook the spring(* Remember the original hooking position for reinstalling after), remove a washer and take out Tension Regulator Unit.
Don't lose a spacer underneath.

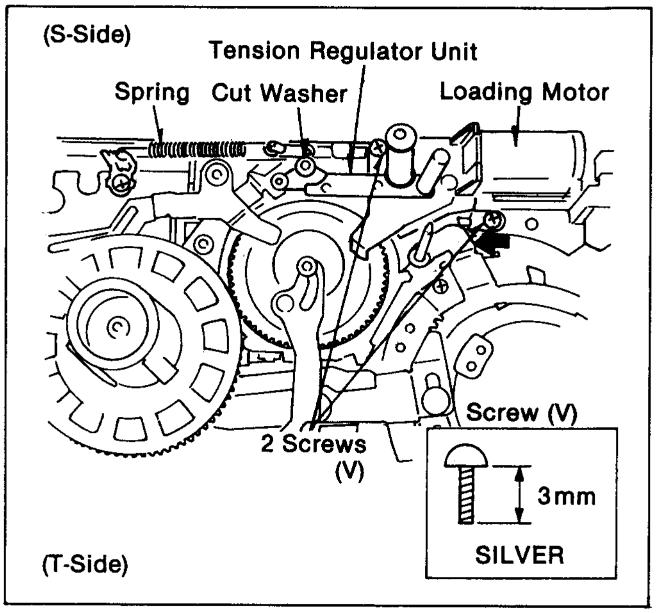

(S-Side)
Tension Regulator Unit
Spring
Cut Washer
Loading Motor
Screw (V)
2 Screws (V)
3mm
SILVER
(T-Side)

Fig. M7

## 4. REMOVAL OF SUPPLY REEL TABLE, EJECT LEVER UNIT AND PAD ARM.

(1) Remove a washer and take out Supply Reel Table. Don't lose a spacer underneath.

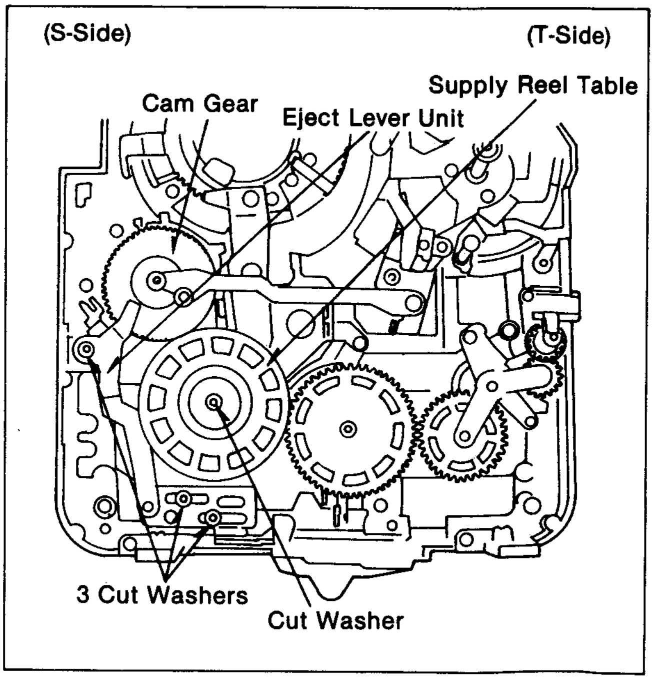

(S-Side)
(T-Side)
Supply Reel Table
Cam Gear
Eject Lever Unit
3 Cut Washers
Cut Washer

Fig. M8

(2) Remove 3 washers, 2 screws on Eject Lock Base to make a clearance (* Eject Lock Base is soldered on the flexible P.C. Board.) and take out Eject Lock Lever.

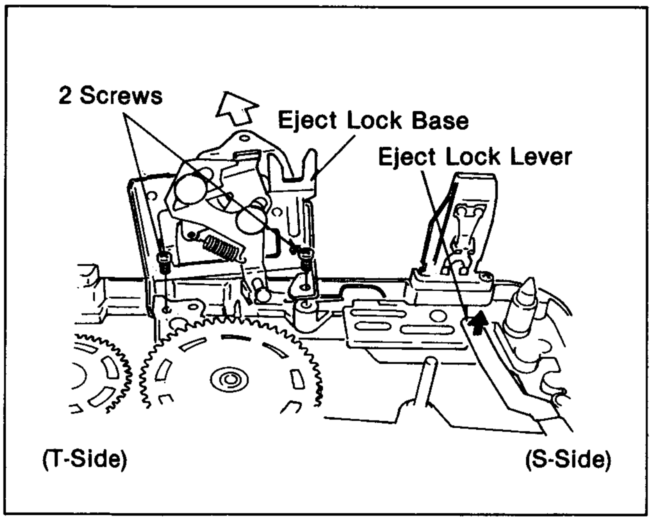

2 Screws
Eject Lock Base
Eject Lock Lever
(T-Side)
(S-Side)

Fig. M9

(3) Remove 2 washers, pull Pinch Drive Arm to the left (S–side) and take it out.

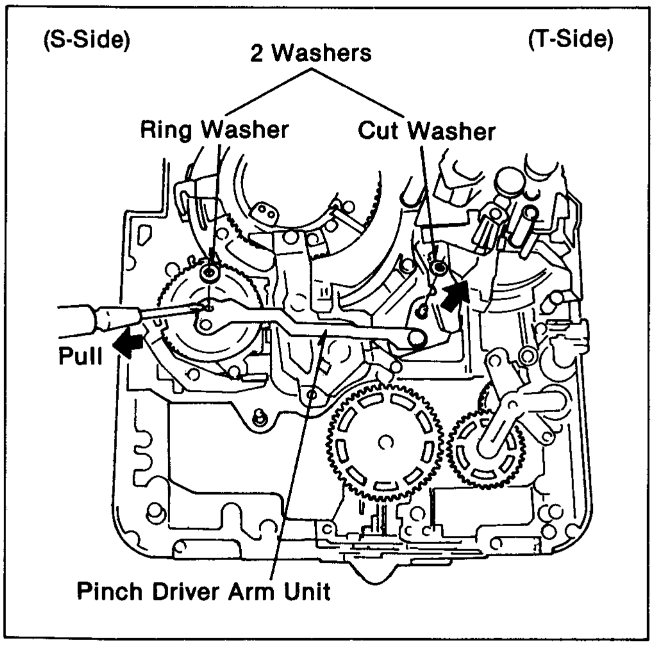

(S-Side)
2 Washers
(T-Side)
Ring Washer
Cut Washer
Pull
Pinch Driver Arm Unit

Fig. M10

(4) Remove a washer and take out Pad Arm.

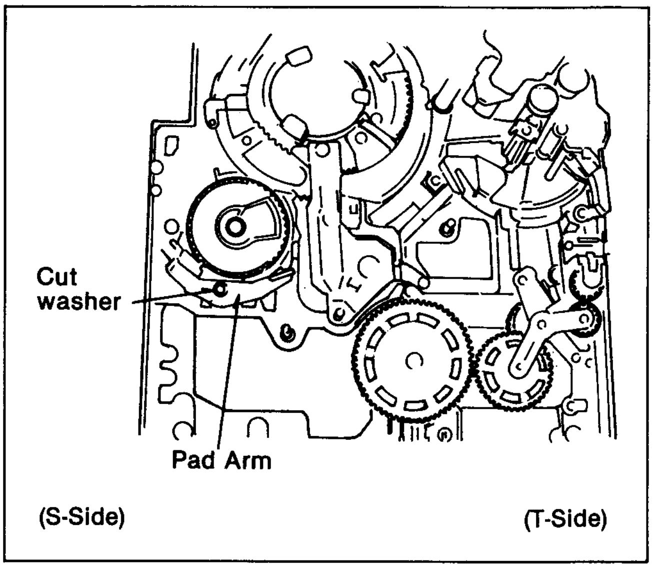

Cut washer
Pad Arm
(S-Side)
(T-Side)

Fig. M11

## 5. REMOVAL OF T–RAIL UNIT, SWING ARM UNIT, LOADING UNIT AND MODE SW UNIT

(1) Remove 2 screws and take out T–Rail Unit. (* Flexible Connector of Sensor LED has to be unsoldered on the bottom side.)

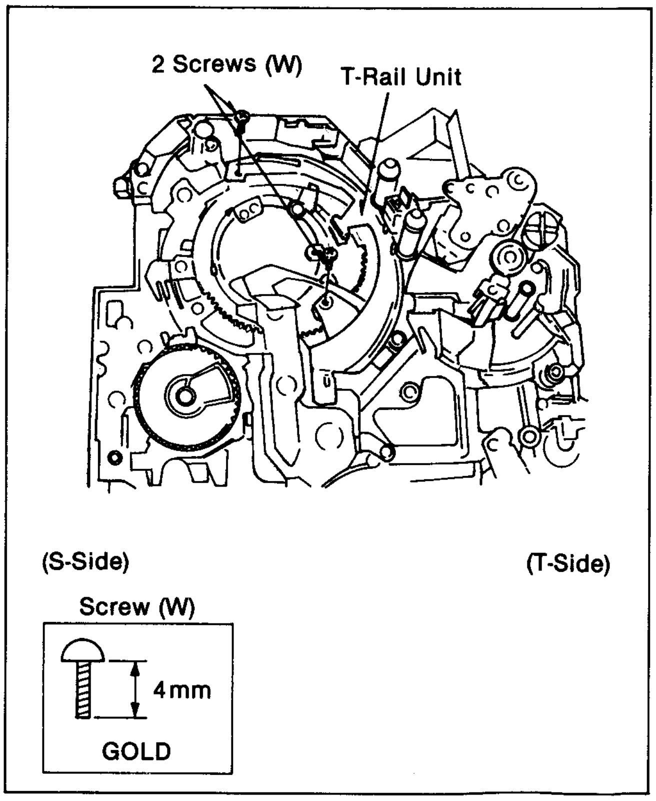

2 Screws (W)
T-Rail Unit
(S-Side)
(T-Side)
Screw (W)
4mm
GOLD

Fig. M12

Caution:
Do not touch inside cam Gear and keep the cam Gear away from grease and dusts.

(2) Remove 2 screws, take out Holder Angle and Swing Arm Unit.

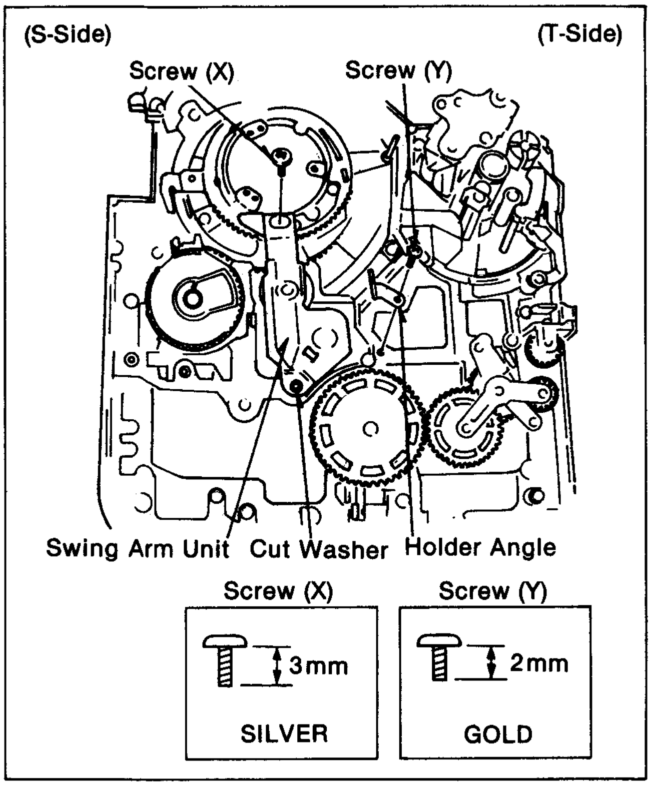

(S-Side)
(T-Side)
Screw (X)
Screw (Y)
Swing Arm Unit
Cut Washer
Holder Angle
Screw (X)
3mm
SILVER
Screw (Y)
2mm
GOLD

Fig. M13

(3) Remove 5 screws.

(4) Loosen Screw (a) to make a clearance and take out Loading Unit.

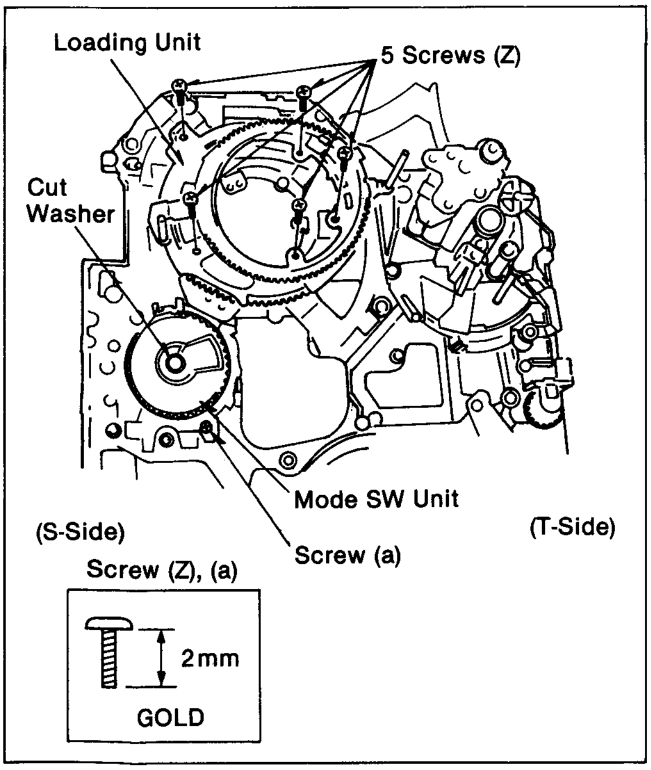

Loading Unit
5 Screws (Z)
Cut Washer
Mode SW Unit
(S-Side)
(T-Side)
Screw (a)
Screw (Z), (a)
2mm
GOLD

Fig. M14

(5) Remove screw (a) and cut washer to take out mode SW unit. (※Mode SW Base is soldered on the flexible P.C. Board).

## 2-3. ASSEMBLY AND PHASE ADJUSTMENT PROCEDURES OF MECHANISM

1. ASSEMBLY AND PHASE ADJUSTMENT OF LOADING UNIT.

   (1) Install Loading Unit and tighten 5 screws.
   (2) Adjust mechanical phase so that phase marks (See-through holes) meet on both supply and take up sides as shown below.

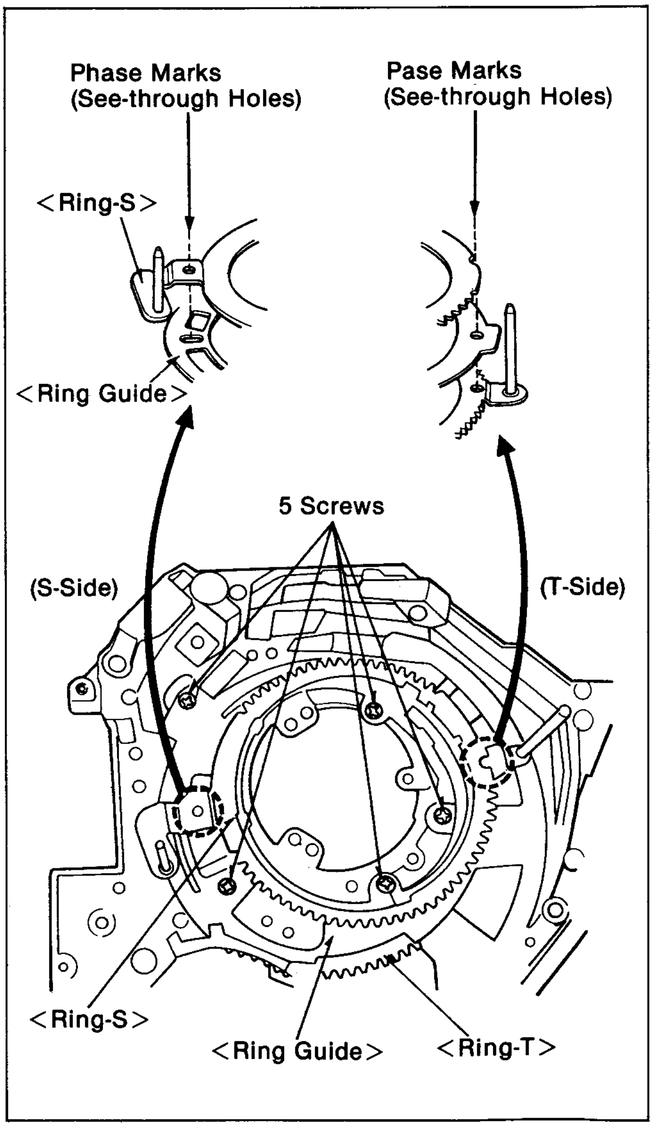

Phase Marks
(See-through Holes)
Pase Marks
(See-through Holes)
<Ring-S>
<Ring Guide>
5 Screws
(S-Side)
(T-Side)
<Ring-S>
<Ring Guide>
<Ring-T>

Fig. M15

2. ASSEMBLY AND PHASE ADJUSTMENT OF CAM GEAR.

   (1) Install Cam Gear so that uneven cog portion meets the phase mark on the chassis and put the washer.

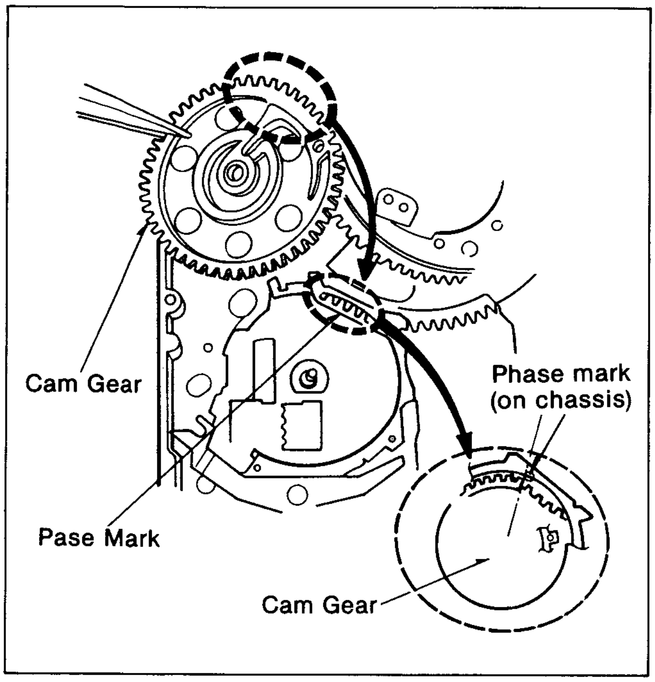

Cam Gear
Phase mark
(on chassis)
Pase Mark
Cam Gear

Fig. M16

3. ASSEMBLY OF PENDULUM ARM UNIT.

(1) Install Swing Arm Unit and tighten 2 screws with the holder angle.
(2) After that, Confirm that the phase mark on Loading Ring−T can be seen through the square cutout of Swing Arm Unit. Also, the phase mark of Swing Arm Unit (V−cutout) is meeting the phase mark on Loading Ring−S Unit on the bottom side. Those phase marks naturally come to the specific positions, if the previous phase adjustments have been done correctly.

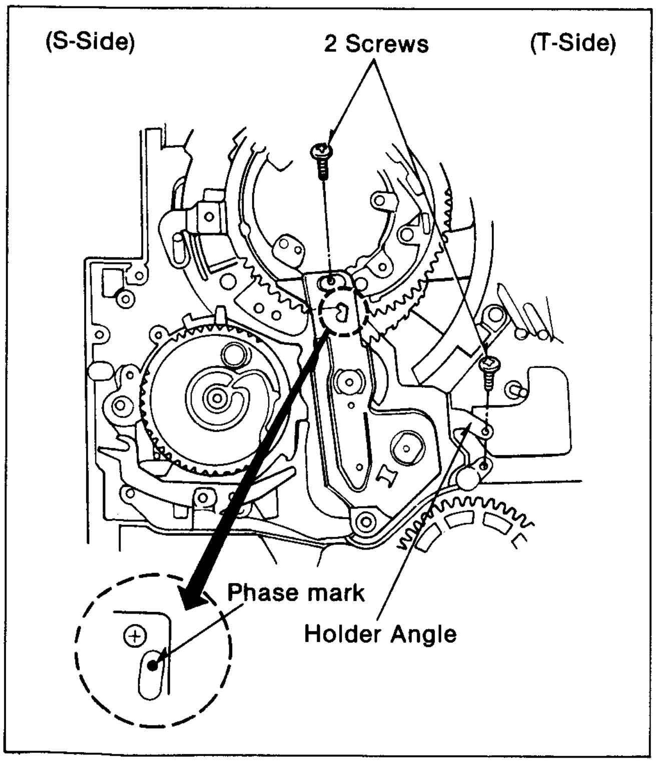

(S-Side)
2 Screws
(T-Side)
Phase mark
Holder Angle

Fig. M17

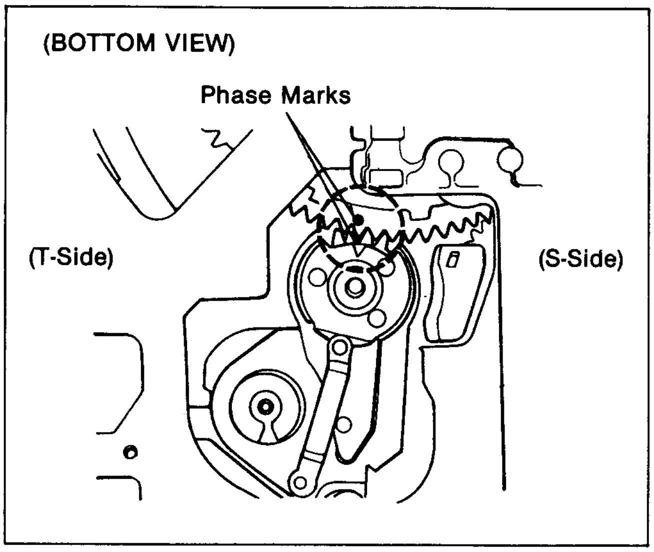

(BOTTOM VIEW)
Phase Marks
(T-Side)
(S-Side)

Fig. M18

4. ASSEMBLY OF LOADING UNIT PINCH DRIVE ARM UNIT AND CONFIRMATION OF MECHANICAL MOVEMENT

(1) Install Loading Motor Unit and tighten one screw. (one more screw has to be tightened after installing Pinch Drive Arm Unit, which is explained after.)

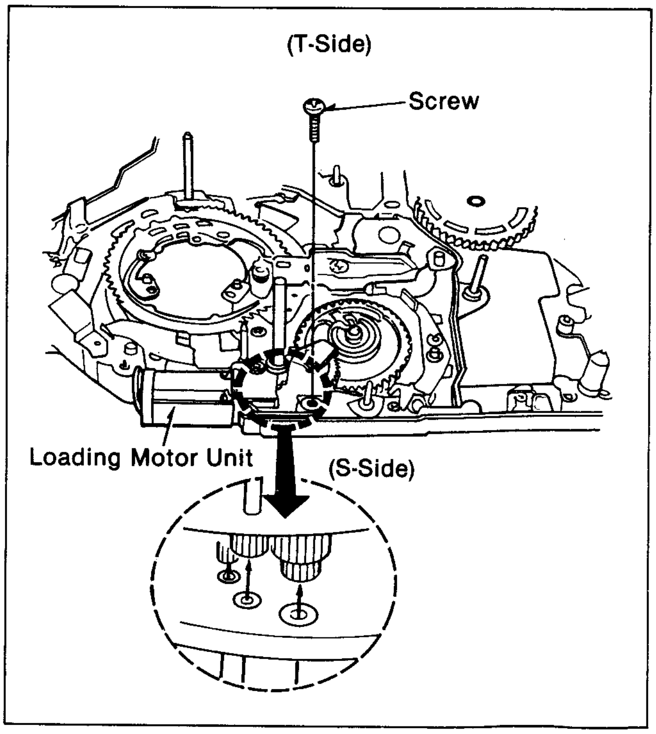

(T-Side)
Screw
Loading Motor Unit
(S-Side)

Fig. M19

(2) Install Pinch Drive Arm Unit and put washer (A).

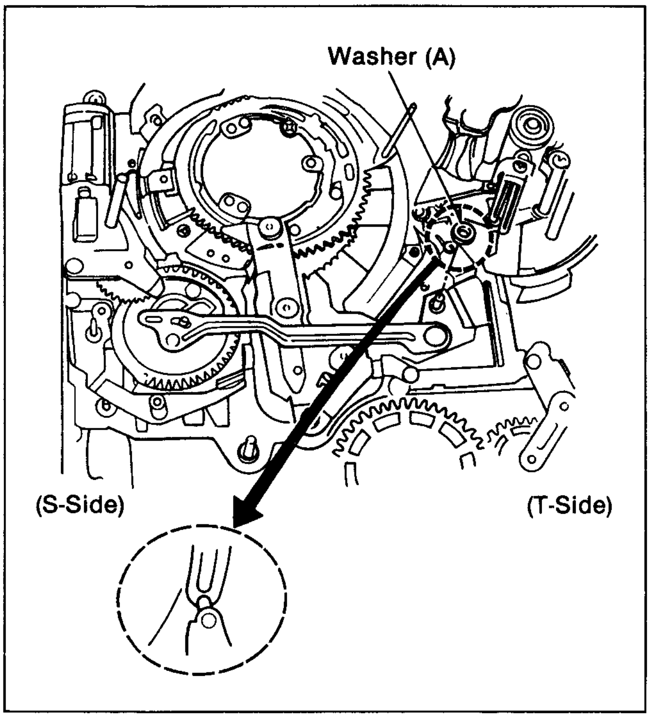

Washer (A)
(S-Side)
(T-Side)

Fig. M20

(3) Move Pinch Roller to the unloading position by finger and put washer (B).

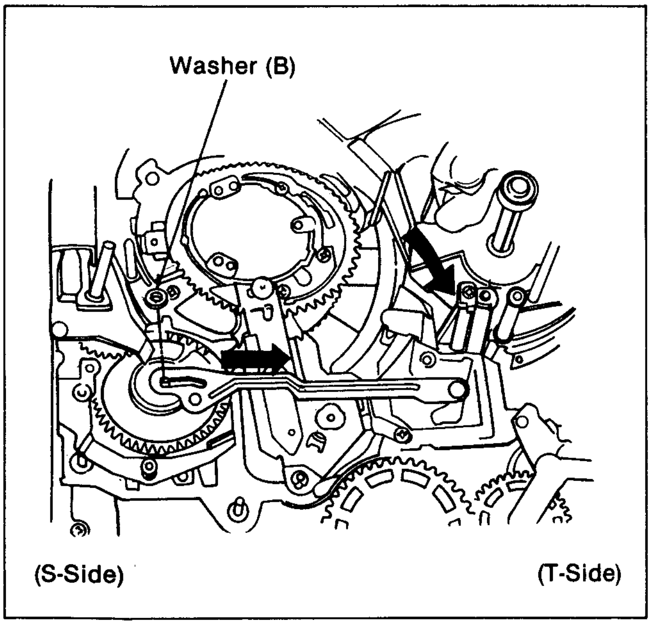

Washer (B)
(S-Side)
(T-Side)

Fig. M21

(4) Slightly move Loading Ring–S in the unloading direction by applying 1.5VDC to Loading Motor and tighten a screw.

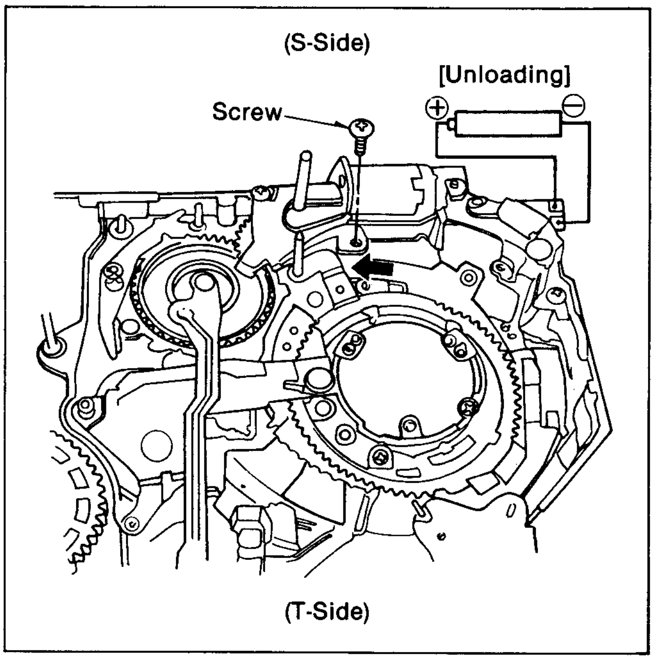

(S-Side)
[Unloading]
Screw
⊕
⊖
(T-Side)

Fig. M22

(5) Confirmation of Mechanical Movement and phase.
In this condition, confirm that the mechanism smoothly moves in both loading and unloading directions by changing the polarity of the battery.
After that, move the mechanism back to the phase adjustment position and confirm all phase marks come to each specific position.

5. ASSEMBLY OF S–RAIL UNIT AND T–RAIL UNIT

(1) Install S–Rail Unit passing Link Post of Ring–S through the linking hole of the S–Rail Unit, and tighten 2 screws.

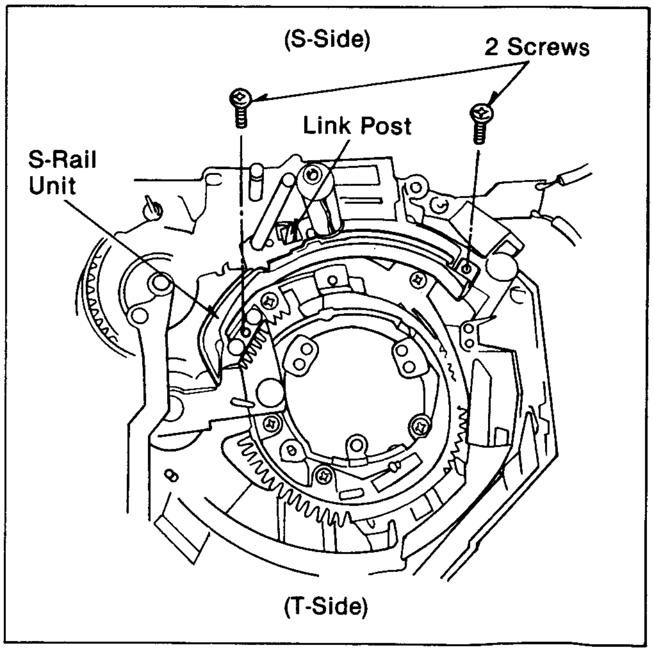

(S-Side)
2 Screws
Link Post
S-Rail Unit
(T-Side)

Fig. M23

(2) In the same way, install T–Rail Unit and tighten 2 screws.
(3) Solder the flexible connector of Sensor LED on the bottom side.

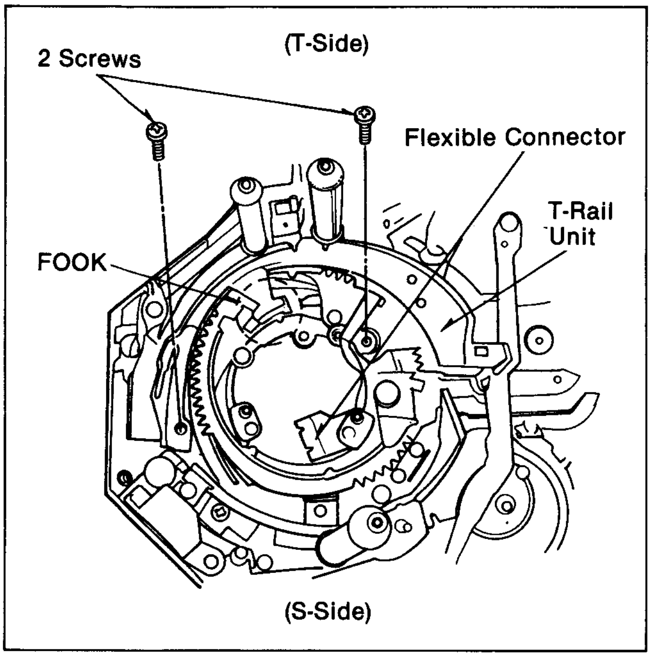

(T-Side)
2 Screws
Flexible Connector
T-Rail Unit
FOOK
(S-Side)

Fig. M24

6. ASSEMBLY OF EJECT LEVER UNIT

(1) Install Eject Lever Unit and link the arm with Eject Lock Base.
(2) Fix Eject Lock Base with 2 screws and Eject Lever Unit with 3 washers.

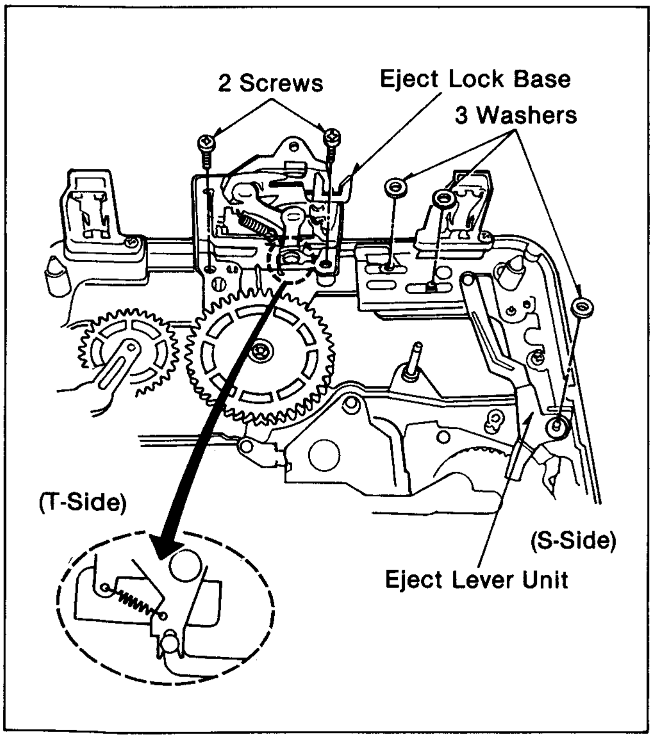

2 Screws
Eject Lock Base
3 Washers
(T-Side)
(S-Side)
Eject Lever Unit

Fig. M25

7. ASSEMBLY OF TENSION REGULATOR UNIT.

(1) Install Tension Regulator Unit so that the guide arm fits in outer inside of Cam Gear.
(2) Put the washer and hook Tenshion Spring to the original position.

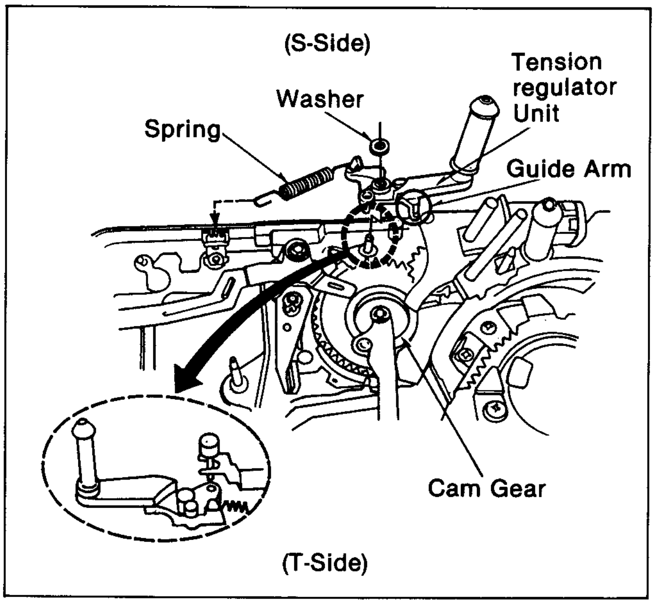

(S-Side)
Tension regulator Unit
Washer
Spring
Guide Arm
Cam Gear
(T-Side)

Fig. M26

8. ASSEMBLY OF SUPPLY REEL TABLE

(1) Install Supply Reel Table and put a washer.

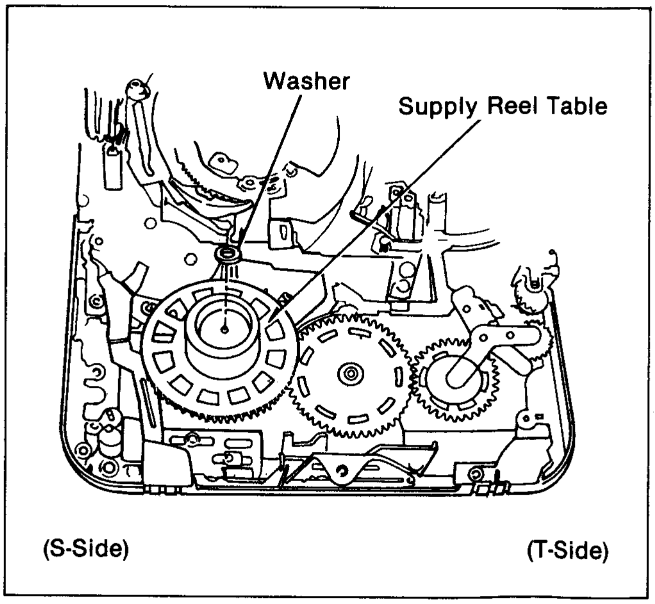

Washer
Supply Reel Table
(S-Side)
(T-Side)

Fig. M27

## 9. ASSEMBLY OF DD CYLINDER UNIT

(1) Install DD Cylinder unit so that the fixating pins fit into the fixating holes, and tighten 3 screws from the bottom side.

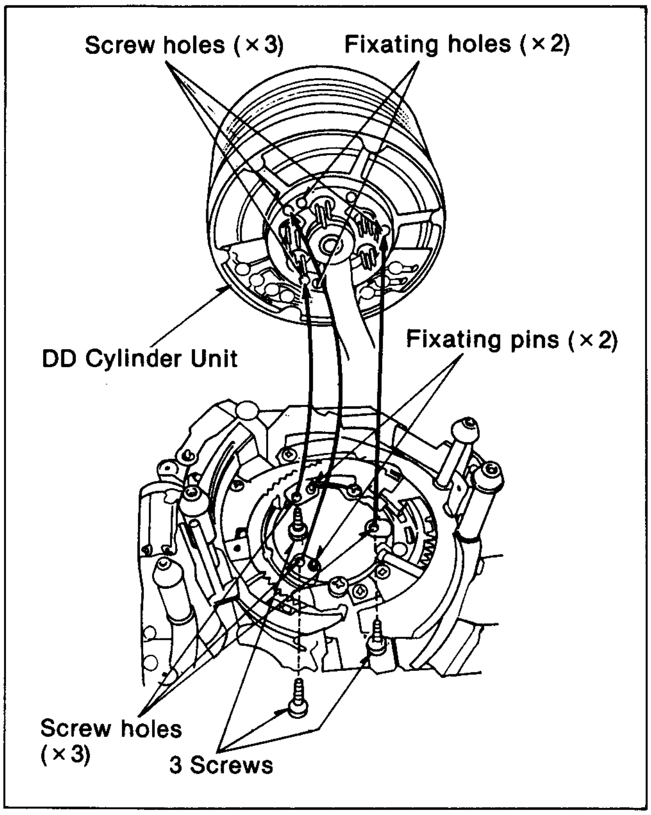

Screw holes (×3)
Fixating holes (×2)
DD Cylinder Unit
Fixating pins (×2)
Screw holes (×3)
3 Screws

Fig. M28

## 10. ASSEMBLY OF RT CONNECTOR

(1) Hold RT Connector aiming the phase mark of RT Connector (while indication) to the phase mark on the chassis.
(2) Carefully Install the RT Connector passing lead pins of DD Cylinder Unit through each corresponding hole of the RT Connector.

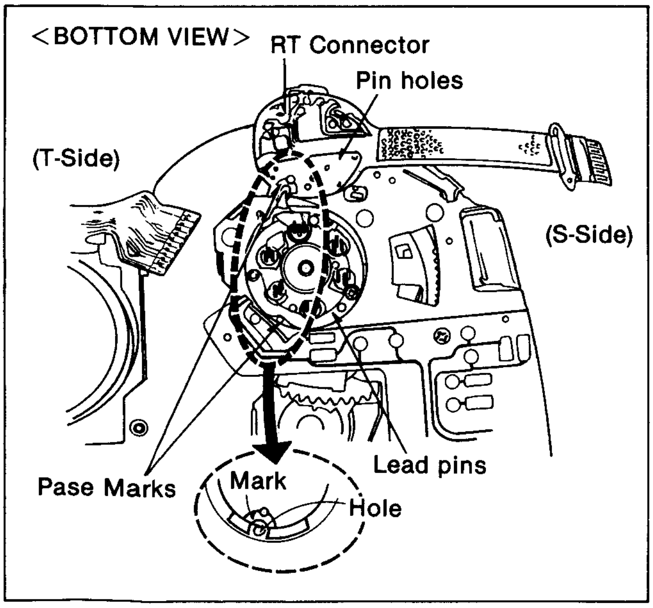

<BOTTOM VIEW>
RT Connector
Pin holes
(T-Side)
(S-Side)
Pase Marks
Mark
Lead pins
Hole

Fig. M29

## 11. ASSEMBLY OF CASSETTE HOLDER UNIT.

(1) Install Cassette Holder Unit and tighten 4 red screws.
(2) Finally, solder flexible connectors of Supply Photo Sensor, Take up photo Sensor and Loading Motor Unit on the bottom side.

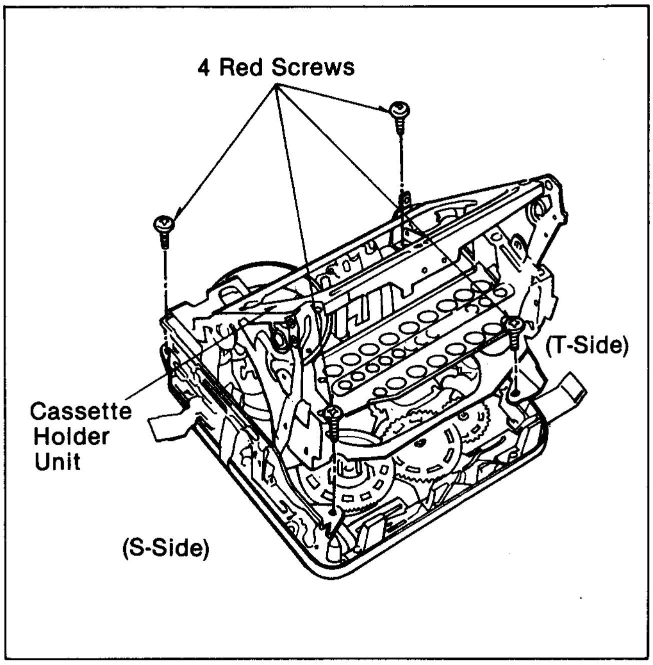

4 Red Screws
(T-Side)
Cassette Holder Unit
(S-Side)

Fig. M30

## 2-4. INTERCHANGEABILITY ADJUSTMENT

1. BACK TENSION ADJUSTMENT

- * Equipment Required
  Tension Meter
  VHS−C Cassette Tape
  Specification 18+3/−1.5g(16.5g~21g)

(1) Play back (remove the cassette tape cover) tape.
(2) Set Tension Meter at the measuring point and read the value.
(3) If the value is out of specification, change the hooking position of Tension Spring.
(4) Install Cassette Holder Unit.

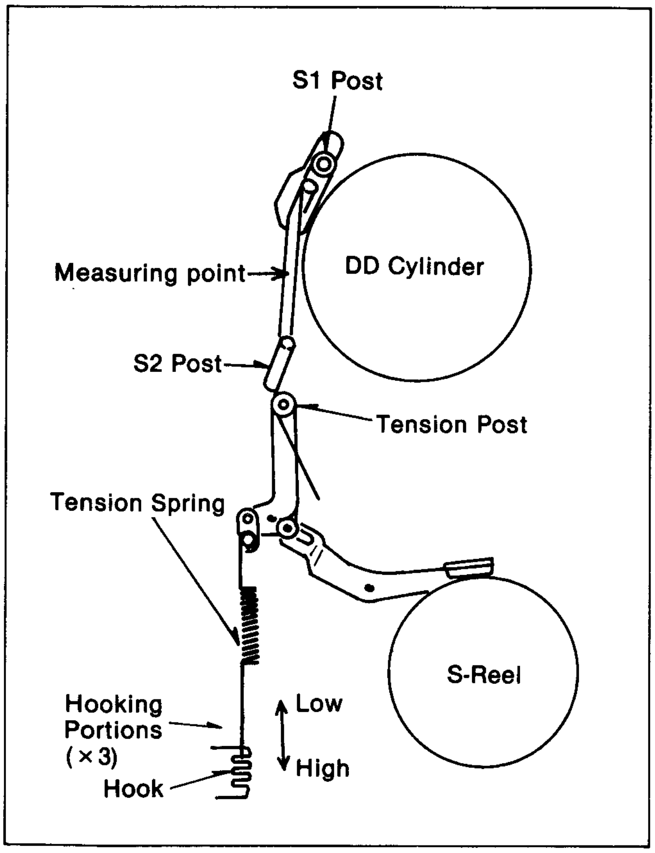

S1 Post
Measuring point
DD Cylinder
S2 Post
Tension Post
Tension Spring
S-Reel
Hooking Portions (×3)
Hook
Low
High

Fig. M31

2. HEIGHT ADJUSTMENT OF TAPE GUIDE POSTS AND A/C HEAD (PRELIMINARY ADJUSTMENT)

Confirmation of Tape Travel
(1) Playback a cassette tape (remove the cassette tape cover) and confirm that the tape travels without curling at upper and lower guides on posts S1,T1,T2 and T3.

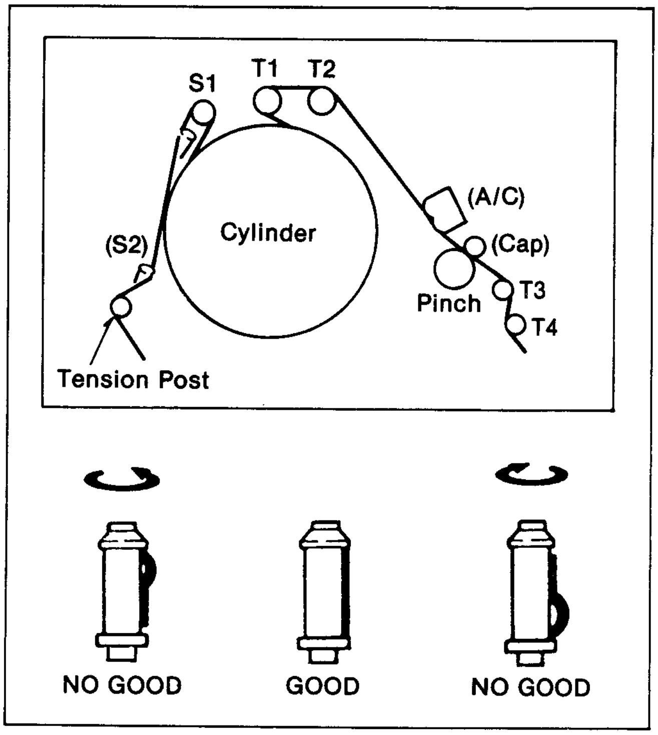

S1
T1
T2
(A/C)
(Cap)
Cylinder
(S2)
Pinch
T3
T4
Tension Post
NO GOOD
GOOD
NO GOOD

Fig. M32

(2) If curling is apparent, adjust the height of posts by turning the top of post With Hex Wrench.
(3) Looking at the lower edge of the control Head with the tape in motion, ensure that lower edge of the tape runs 0.25mm above the lower edge of control Head. If it doesn't, turn the A/C head height Adjustment Nut slightly in either direction as necessary to correct it.

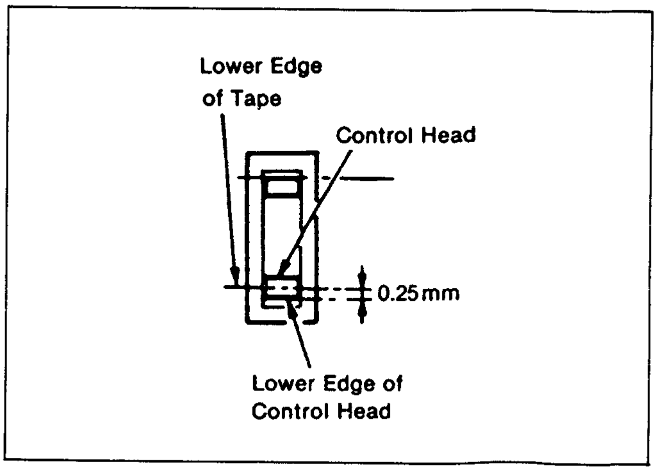

Lower Edge of Tape
Control Head
0.25mm
Lower Edge of Control Head

Fig. M33

## 3. TAPE INTERCHANEABILITY ADJUSTMENT

NOTE:
To perform these adjustments, make sure that the tracking control is set in the fixed position by Pressing both tracking Up/Down switches at the same time.

* Equipment Required
Dual Trace Oscilloscope
Alignment tape (VFM8180HUPF)

### [ AZIMUTH ADJUSTMENT OF A/C HEAD ]

(1) Connect the oscilloscope to Audio Line Output.
(2) Play back the Monoscope portion (6KHZ,MONO) of the Alignment tape.
(3) Adjust the Azimuth Adjustment screw on the A/C Head Unit so that output level is at a maximum.

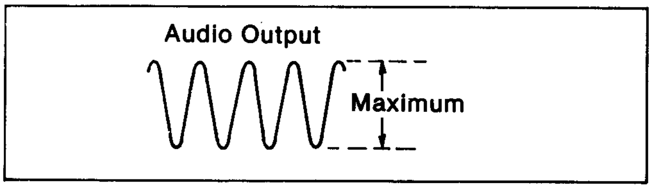

Audio Output
Maximum

Fig. M34

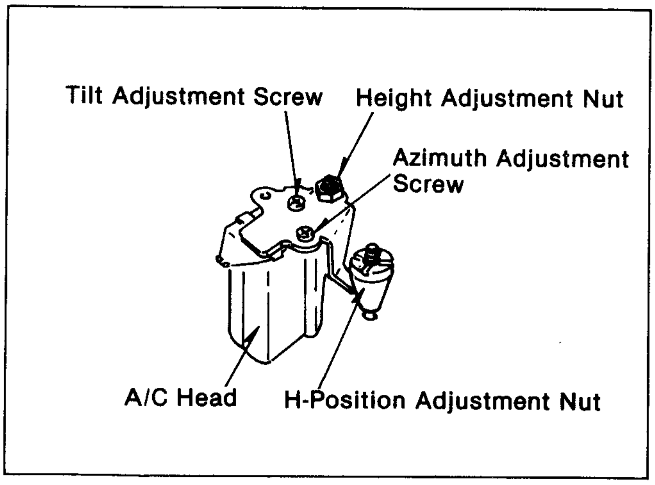

Tilt Adjustment Screw
Height Adjustment Nut
Azimuth Adjustment Screw
A/C Head
H-Position Adjustment Nut

Fig. M35

### [ HORIZONTAL POSITION ADJUSTMENT OF A/C HEAD ]

(1) Connect the oscilloscope to TP8002 or Pin 24 IC3001.
(2) Playback the monoscope portion of the alignment tape.
(3) Adjustment horizontal position by turning H−Position Adjustment Nut so that the envelope level is at a maximum.

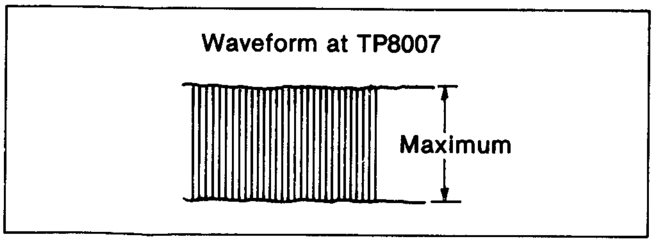

Waveform at TP8007
Maximum

Fig. M36

### [ CONFIRMATION/ADJUSTMENT OF ENVELOPE ]

(1) Set the tracking control to the fixed position by pressing both tracking control Up/Down Switches at the same time, and connect the Oscilloscope to TP8002 or Pin 24 of IC3001.
(2) Play back the Monoscope portion of the Alignment Tape and adjust the height of S1 and T1 posts watching the scope display so that the RF envelope becomes as flat as possible.
(3) When the RF envelope is lacked at the beginning of the track, adjust height of S1 post.

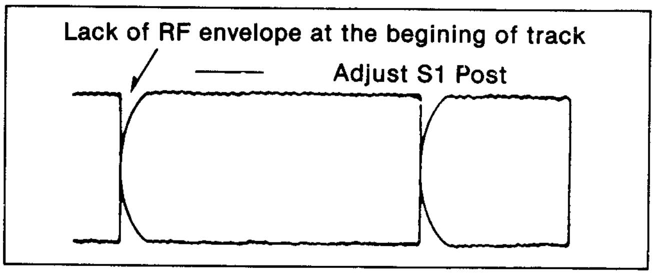

Lack of RF envelope at the begining of track
Adjust S1 Post

Fig. M37

(4) When the RF envelope is lacked at the end of the track, adjust height of T1 post.

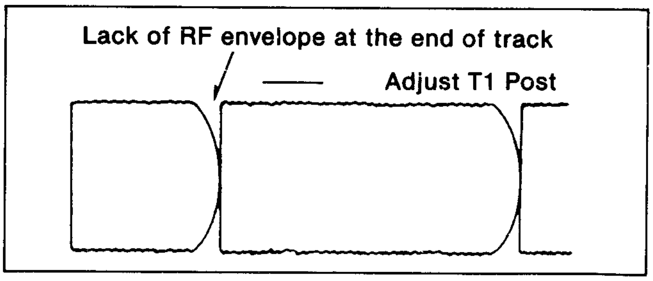

Lack of RF envelope at the end of track
Adjust T1 Post

Fig. M38

(5) When S2 and T1 Posts are adjusted properly, there is no lack of RF Envelope at the beginning or end of the track as shown below.

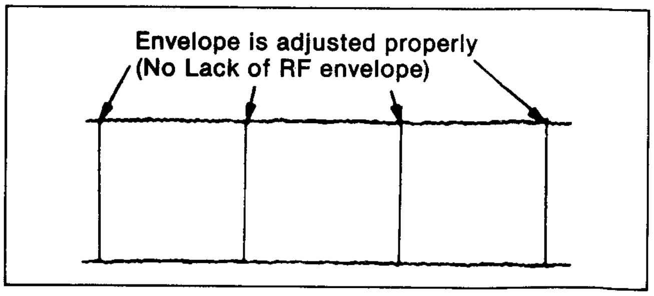
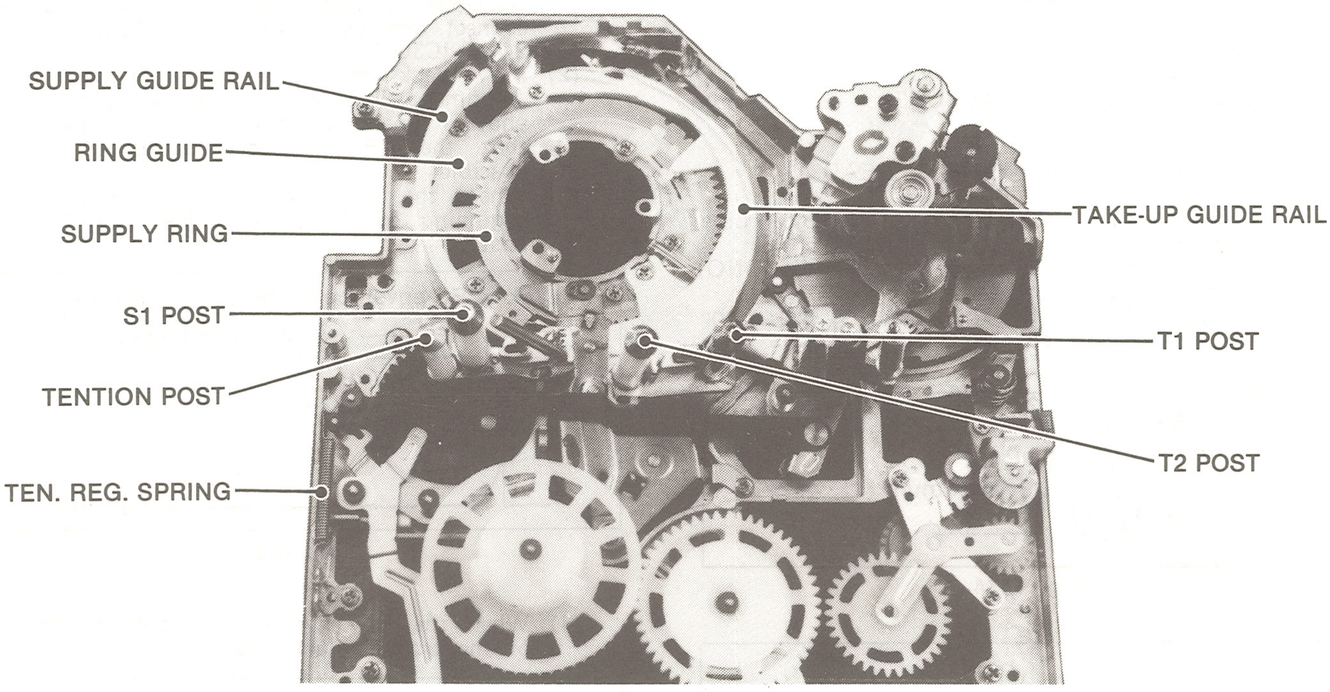

Envelope is adjusted properly
(No Lack of RF envelope)

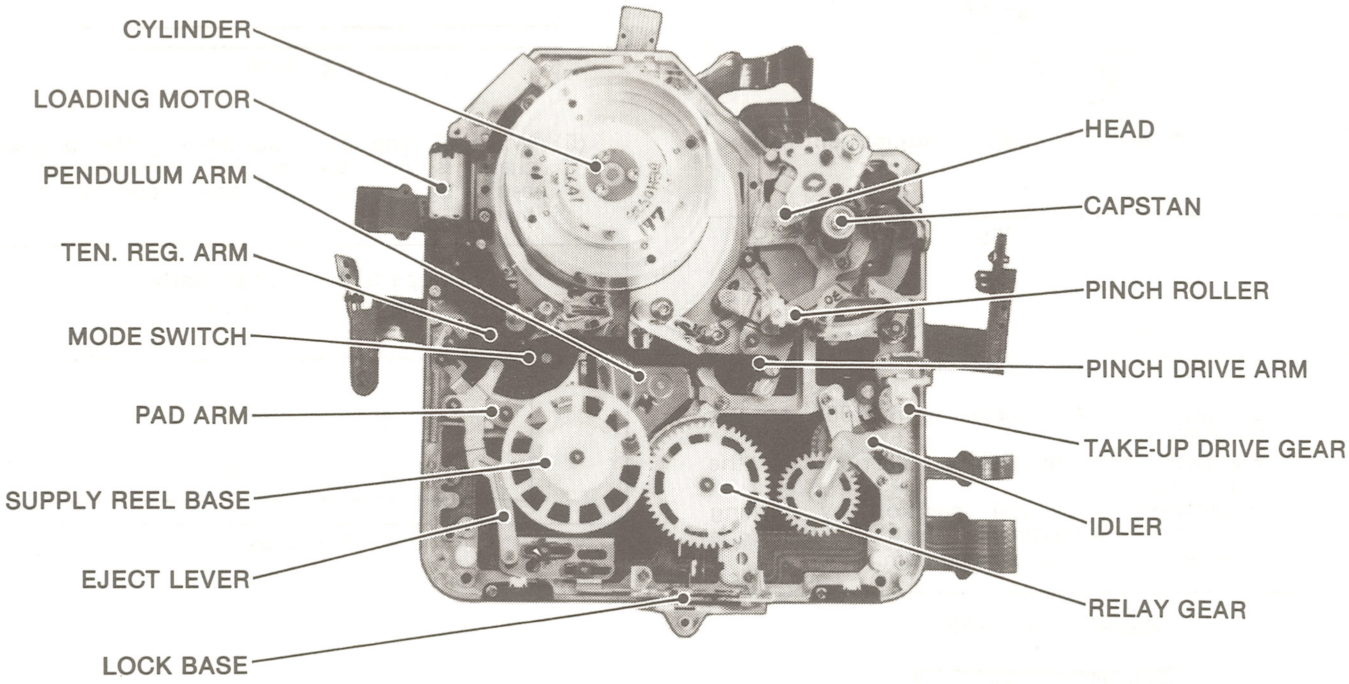
Fig. M39

# 1 Movement of Mechanism

## 1. Name of Mechanism


SUPPLY GUIDE RAIL
RING GUIDE
SUPPLY RING
S1 POST
TENTION POST
TEN. REG. SPRING
TAKE-UP GUIDE RAIL
T1 POST
T2 POST

*RING T is located underneath of RING GUIDE


CYLINDER
LOADING MOTOR
PENDULUM ARM
TEN. REG. ARM
MODE SWITCH
PAD ARM
SUPPLY REEL BASE
EJECT LEVER
LOCK BASE
HEAD
CAPSTAN
PINCH ROLLER
PINCH DRIVE ARM
TAKE-UP DRIVE GEAR
IDLER
RELAY GEAR

## 2. Movement to Mechanism

### 1. Loading operation

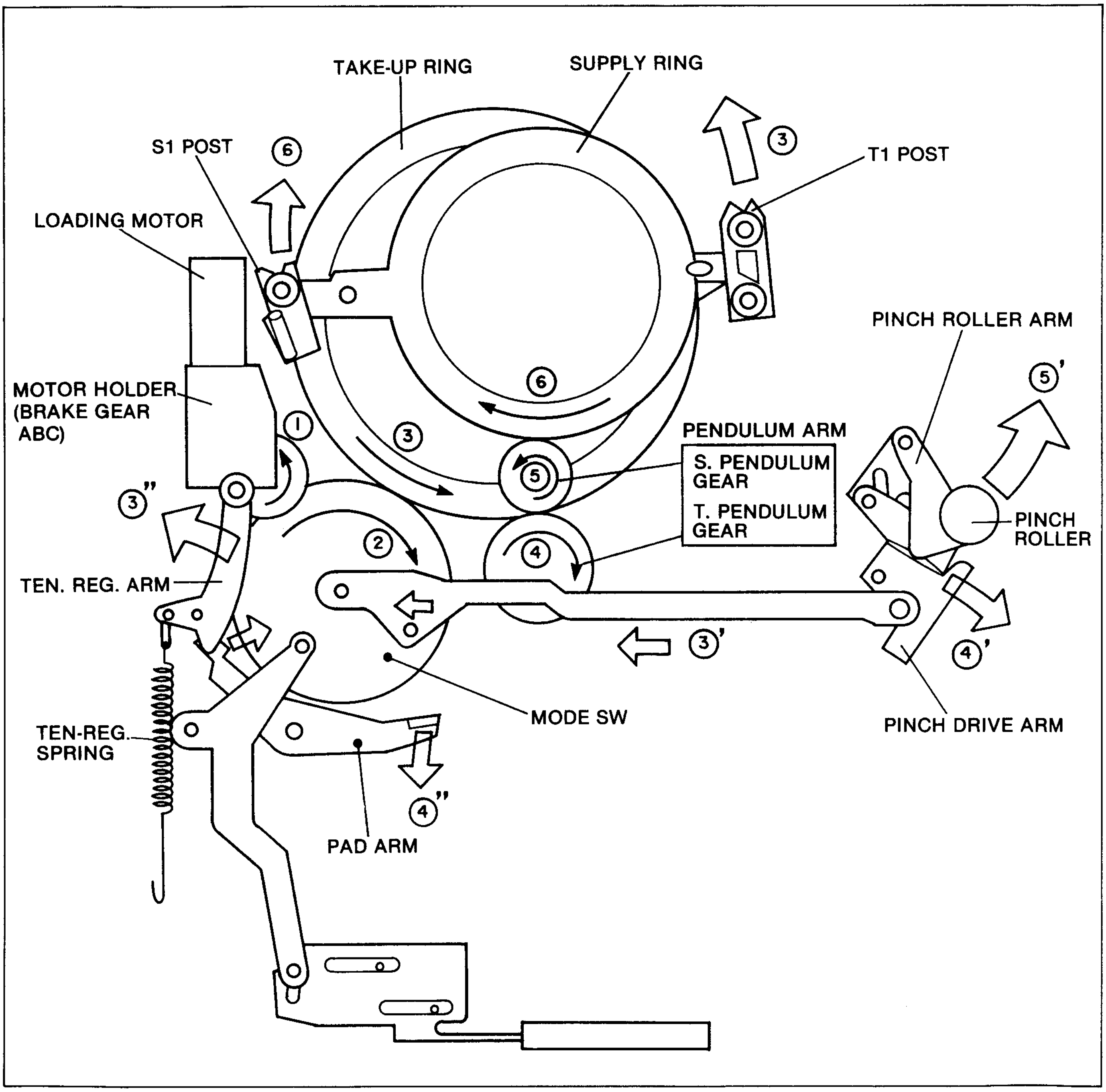

TAKE-UP RING
SUPPLY RING
S1 POST
⑥
③
T1 POST
LOADING MOTOR
PINCH ROLLER ARM
⑤'
MOTOR HOLDER (BRAKE GEAR ABC)
⑥
①
③
PENDULUM ARM
S. PENDULUM GEAR
T. PENDULUM GEAR
⑤
③"
②
④
PINCH ROLLER
TEN. REG. ARM
③'
④'
TEN-REG. SPRING
MODE SW
PINCH DRIVE ARM
④"
PAD ARM

Fig. 1 Loading Mechanism

- Motive power of loading motor is transferred by order of arrow mark.
  - Drive of loading post.
  - Heard Contact Pinchi Roller with capstan shaft. (Play Position)
  - Heard Contact Pad Arm with S. Reel table. (Play Position)

## 2. Eject operation

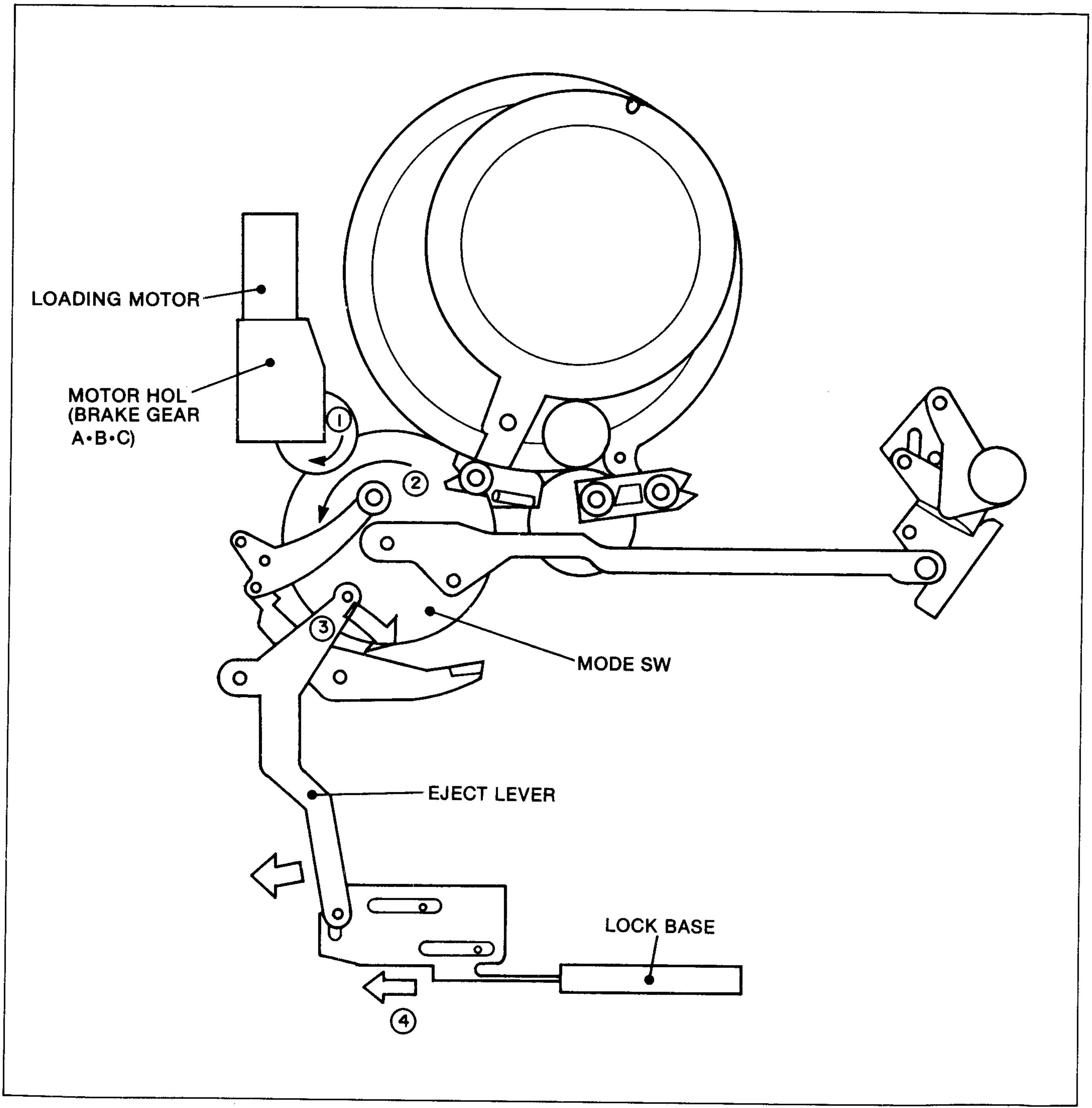

LOADING MOTOR
MOTOR HOL
(BRAKE GEAR
A•B•C)
①
②
③
MODE SW
EJECT LEVER
LOCK BASE
④

Fig. 2 Loading mechanism

- Motive power of loading motor is transferred by numerical order.
  After cassette up operation, those gears are moved to opposite of arrow's direction, to turn back stop1 condition.

## 3. Movement of Reel table

### 1. FF operation

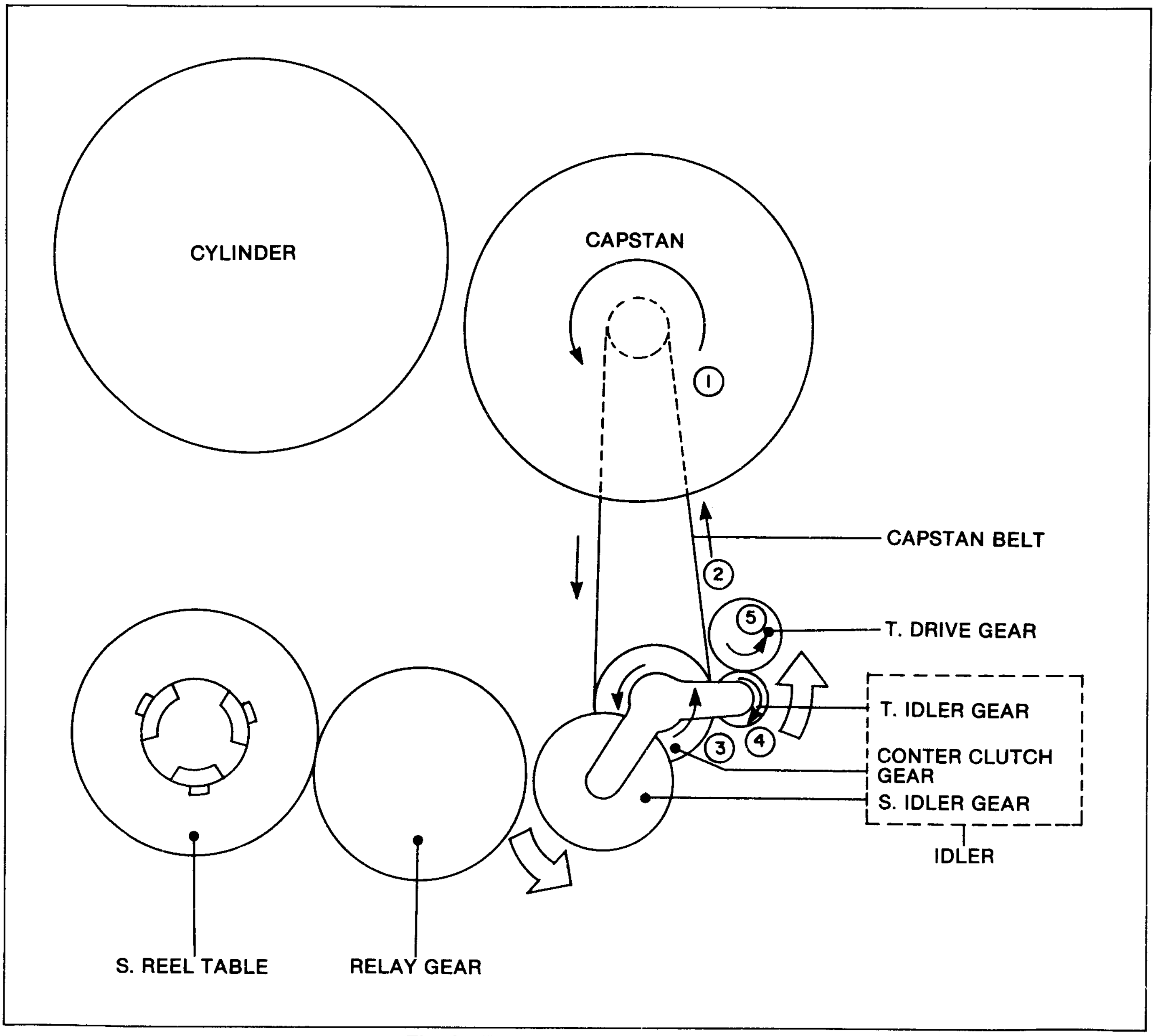

CYLINDER
CAPSTAN
①
CAPSTAN BELT
②
⑤
T. DRIVE GEAR
T. IDLER GEAR
③
④
CONTER CLUTCH GEAR
S. IDLER GEAR
IDLER
S. REEL TABLE
RELAY GEAR

Fig. 3 Take-Up side of Reel Drive

- Motive Power of Capstan motor is transferred to Idler (Center clutch Gear) through the capstan belt.
  At this time, position of Idler is decided by rotation of capstan motor.
  After that, Motive power is transferred by numerical order.
  Finaly, Take-up Reel is rotated by T. Drive Gear.
- Pad Arm is moved by Ten. Reg. Arm, and then contact with lower side of S. Reel table in order to apply back tension to tape.

2. REW operation

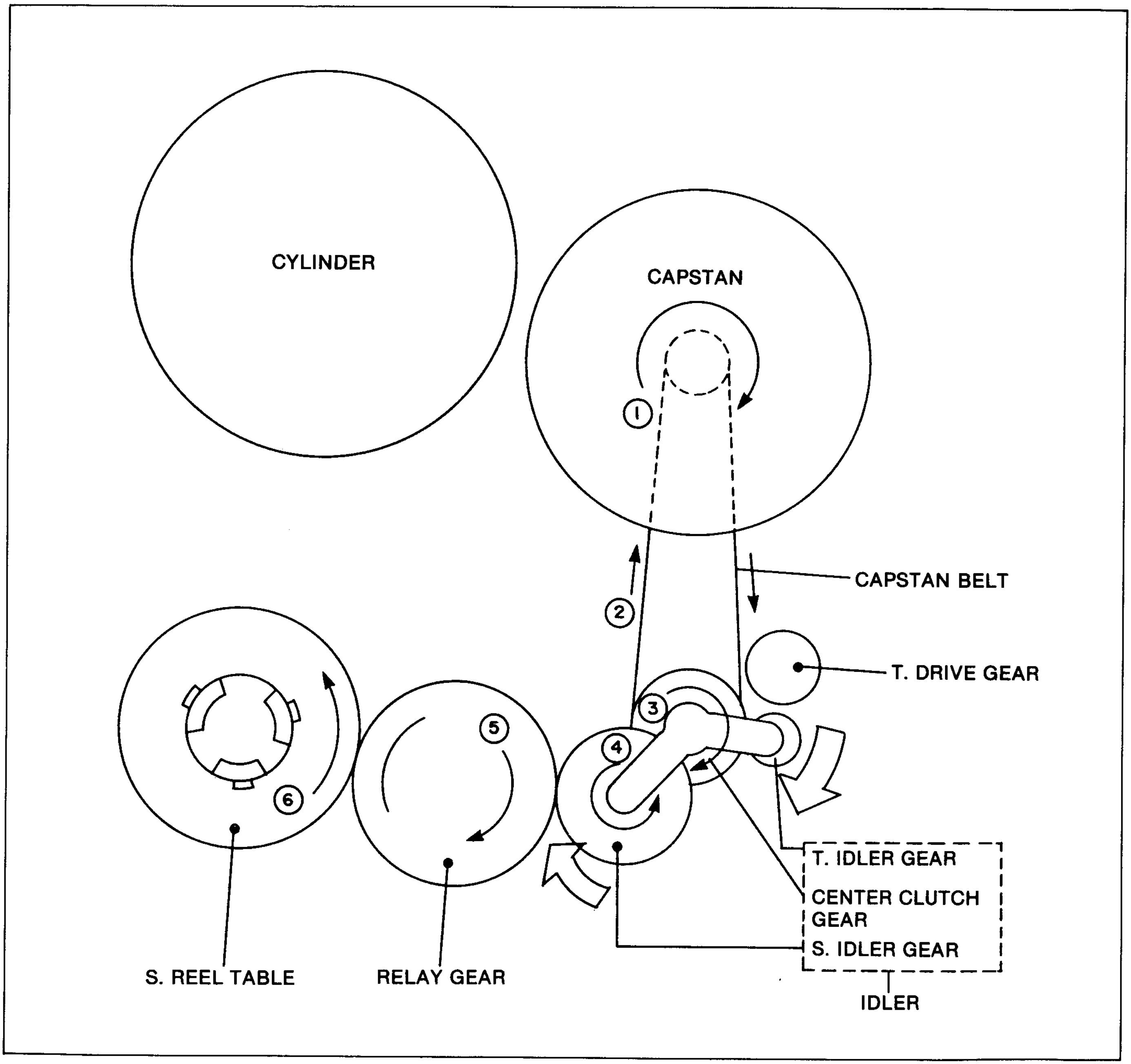

CYLINDER
CAPSTAN
①
②
③
④
⑤
⑥
CAPSTAN BELT
T. DRIVE GEAR
T. IDLER GEAR
CENTER CLUTCH GEAR
S. IDLER GEAR
IDLER
S. REEL TABLE
RELAY GEAR

Fig. 4 Supply side of Reel drive

- Motive power is transmited in numerical order.
- At this time, Idler is contacted to Relay Gear by capstan rotation.
- Also, back tention generate by contact Drive Gear T with REW Torgue spring (Including the Idler unit).

## 2 Alignment of Mechanism

Following mechanichal phase condition is impotant for mechanichal alignment.

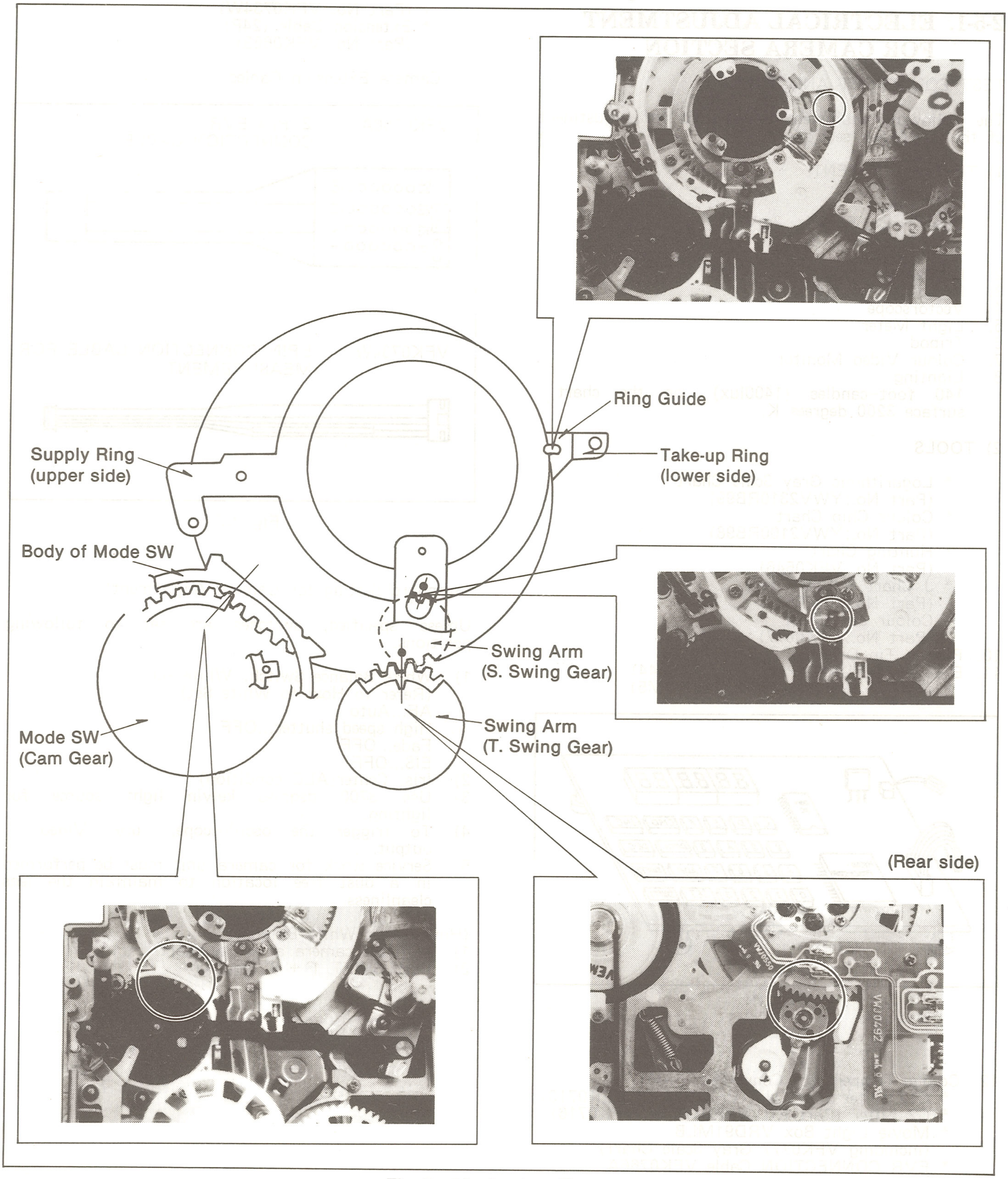

Ring Guide
Take-up Ring
(lower side)
Supply Ring
(upper side)
Body of Mode SW
Swing Arm
(S. Swing Gear)
Mode SW
(Cam Gear)
Swing Arm
(T. Swing Gear)
(Rear side)

Fig. 5 Mechanism Phase

# 2-5. ELECTRICAL ADJUSTMENT PROCEDURES

## 2-5-1. ELECTRICAL ADJUSTMENT FOR CAMERA SECTION

TEST EQUIPMENT AND TOOLS

The following equipment is required for adjustment of the CAMERA section:

1) TEST EQUIPMENT

1. Oscilloscope
   Dual Trace, 50MHz, 2mV/DIV
   10 : 1 Probe
   1 : 1 Probe
2. Digital Volt Meter of VTVM
3. Frequency Counter
4. Vectorscope
5. Light Meter
6. Tripod
7. Colour Video Monitor
8. Lighting
   140 foot–candles (1400lux) on the chart surface 3200 degrees K.

2) TOOLS

- * Logarithmic Gray Scale Chart
  (Part No.:YWV2310RB99)
- * Colour Chip Chart
  (Part No.:YWV2100RB98)
- * Hunting Chart
  (Part No.:VFK0546)
- * J Chart & Ball Chart
  (Part No.:VFK0580)
- * Colour Bar Chart
  (Part No.:VFK0677)

10. Plastic Tip Driver
11. E.V.R. FIXTURE (Part No.:VFK0644)
    * ROM 5 (Part No.:VFK0701ROM5)

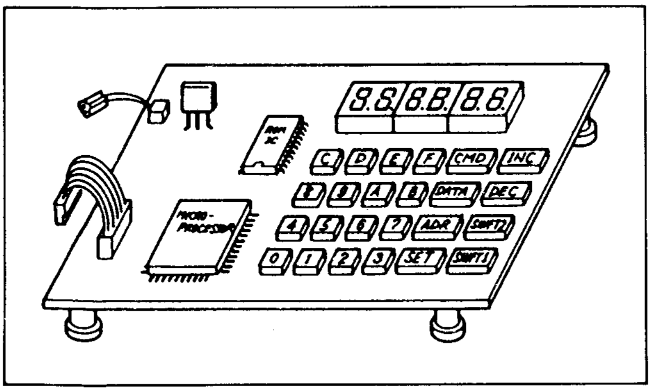


Fig. C1

12. Colour Temperature Conversion Filter
    * C12 Filter (Part No. VFK0374 or VFK0713)
    * C2 Filter (Part No. VFK0375 or VFK0716)
    * Movie Light Box VRD91MLB
    (including VFK0777 Gray Scale Chart)
    * EVR CONNECTION Cable VFK0766A
13. Extension Cable
    * EVR CONNECTION Cable (10P)
    (Part No.VFK0766A)
    * CONNECTION Cable for Measurement (14P)
    (Part No. VFK0734W)
    * Extension Cable (24P)
    (Part No. VFK0668)
14. Camera Extension Cables

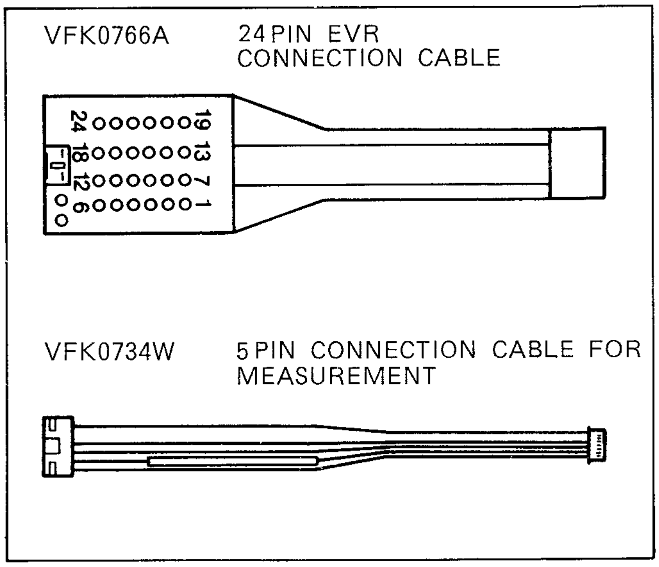

VFK0766A
24PIN EVR CONNECTION CABLE
24
19
18
13
12
7
6
1
VFK0734W
5PIN CONNECTION CABLE FOR MEASUREMENT

Fig. C2

(Standard Setting for Camera Adjustment)

Unless specified, switches are set to following positions.

1) White Balance Switch...White set
   (Refer to How to White Set)
   AF...Auto
   High speed shutter...OFF
   Fade...OFF
   EIS...OFF
2) Iris...Center(ALC condition)
3) Use 3200 degrees kelvin light source for lighting.
4) To trigger the oscilloscope, use Video output.
5) Service work for camera unit must be performed in a dust free location to maintain the lens cleanliness.

(How to set White Balance)
1) Aim the camera at white chart.
2) Push SHIFT 1 + 8 together.

(Description of Command)

Selecting the communication for the type of data exchange performed between EVR Fixture and camcorder.

| Command | Communication | Contents |
|---|---|---|
| 02 | EVR Fixture → EEPROM | Writing the data to address of EEPROM..(Lower Digit) |
| 12 | EVR Fixture → EEPROM | Writing the data to address of EEPROM. (Upper Digit) |
| 04 | EEPROM → EVR Fixture | Reading out the data of EEPROM. (Lower Digit) |
| 14 | EEPROM → EVR Fixture | Reading out the data of EEPROM. (Upper Digit) |
| 08 | EVR Fixture → Micro Computer (RAM) | Data transmission of EVR Fixture to Micro computer (RAM). |
| 18 | EVR Fixture → Micro computer (RAM) | Data tranmission of EVR Fixture to Micro computer (RAM). |
| 09 | Micro computer (RAM) → EVR Fixture | Reading out the data of Micro computer (RAM). |
| 19 | Micro computer (RAM) → EVR Fixture | Reading out the data of Micro computer (RAM). |

Fig. C3

(Error Indication)

If an error is occures while EVR is operating, EVR will display one of the error massages listed in Fig.C4 for 2 seconds and then return to the previous indication.

| Error NO. | Contents of Error |
|---|---|
| 1 | Set the wrong command number |
| 2 | Set the wrong Address number |
| 3 | VD signal from camera is not coming. |
| 4~6 | Detect the error during communication |
| 7 | Writing error in the EEPROM of camera. |
| 8 | Communication error in the EEPROM of camera |

Fig. C4

(Macro Operation)
The following operation is provided to transfer the data by one touch.

<table>
<tr><th>NO.</th><th>Buttom to be pushed</th><th>Operation</th></tr>
<tr><td>1</td><td>SHIFT 1 + 0</td><td>Making IRIS fully open.</td></tr>
<tr><td>2</td><td>SHIFT 1 + 1</td><td>Making IRIS fully close.</td></tr>
<tr><td>3</td><td>SHIFT 1 + 2</td><td>Making AGC Gain minimize.</td></tr>
<tr><td>4</td><td>SHIFT 1 + 3</td><td>Making AGC Gain maximize.</td></tr>
<tr><td>5</td><td>SHIFT 1 + 4</td><td>Fade on.</td></tr>
<tr><td>6</td><td>SHIFT 1 + 5</td><td>Fade off.</td></tr>
<tr><td>7</td><td>SHIFT 1 + 6</td><td>Not Used.</td></tr>
<tr><td>8</td><td>SHIFT 1 + 7</td><td>Switching the Auto/manual Focus.<br>(Press the SHIFT 1 + 7 repeatedly to select the desired focus mode, EVR indicate the mode of Focus at the address digits a moment, detail as follows.)
<table>
<tr><th>LED INDICATION</th><th>MODE</th></tr>
<tr><td>0</td><td>Manual Focus mode.</td></tr>
<tr><td>1</td><td>Auto Focus mode.</td></tr>
</table></td></tr>
<tr><td>9</td><td>SHIFT 1 + 8</td><td>White set</td></tr>
<tr><td>10</td><td>SHIFT 1 + 9</td><td>Making Iris manual condition.</td></tr>
<tr><td>11</td><td>SHIFT 1 + A</td><td>Making Iris Auto condition.</td></tr>
<tr><td>12</td><td>SHIFT 1 + B</td><td>Making AGC on.</td></tr>
<tr><td>13</td><td>SHIFT 2 + 2</td><td>Writing the Average data and Fixed data to EEPROM.</td></tr>
<tr><td>14</td><td>SHIFT 2 + 3</td><td>Automatic Calculating the Colour Reproduction.<br>Automatic Calculating for Auto White Balance.</td></tr>
<tr><td>15</td><td>SHIFT 2 + 4</td><td>NOT USED</td></tr>
<tr><td>16</td><td>SHIFT 2 + 5</td><td>Zoom come to “WIDE” position.</td></tr>
<tr><td>17</td><td>SHIFT 2 + 6</td><td>Zoom stop.</td></tr>
<tr><td>18</td><td>SHIFT 2 + 7</td><td>Zoom come to “TELE” position.</td></tr>
<tr><td>19</td><td>SHIFT 2 + 8</td><td>Zoom stop.</td></tr>
<tr><td>20</td><td>SHIFT 2 + 9</td><td>Automatic Calculating for Manual Iris setting.</td></tr>
</table>

Fig. C5

PREPARATION

1) Remove both side cases (R) and (L) referring to disassembly method.
2) Connect the E.V.R. FIXTURE and measuring equipment as shown in Fig.C6.

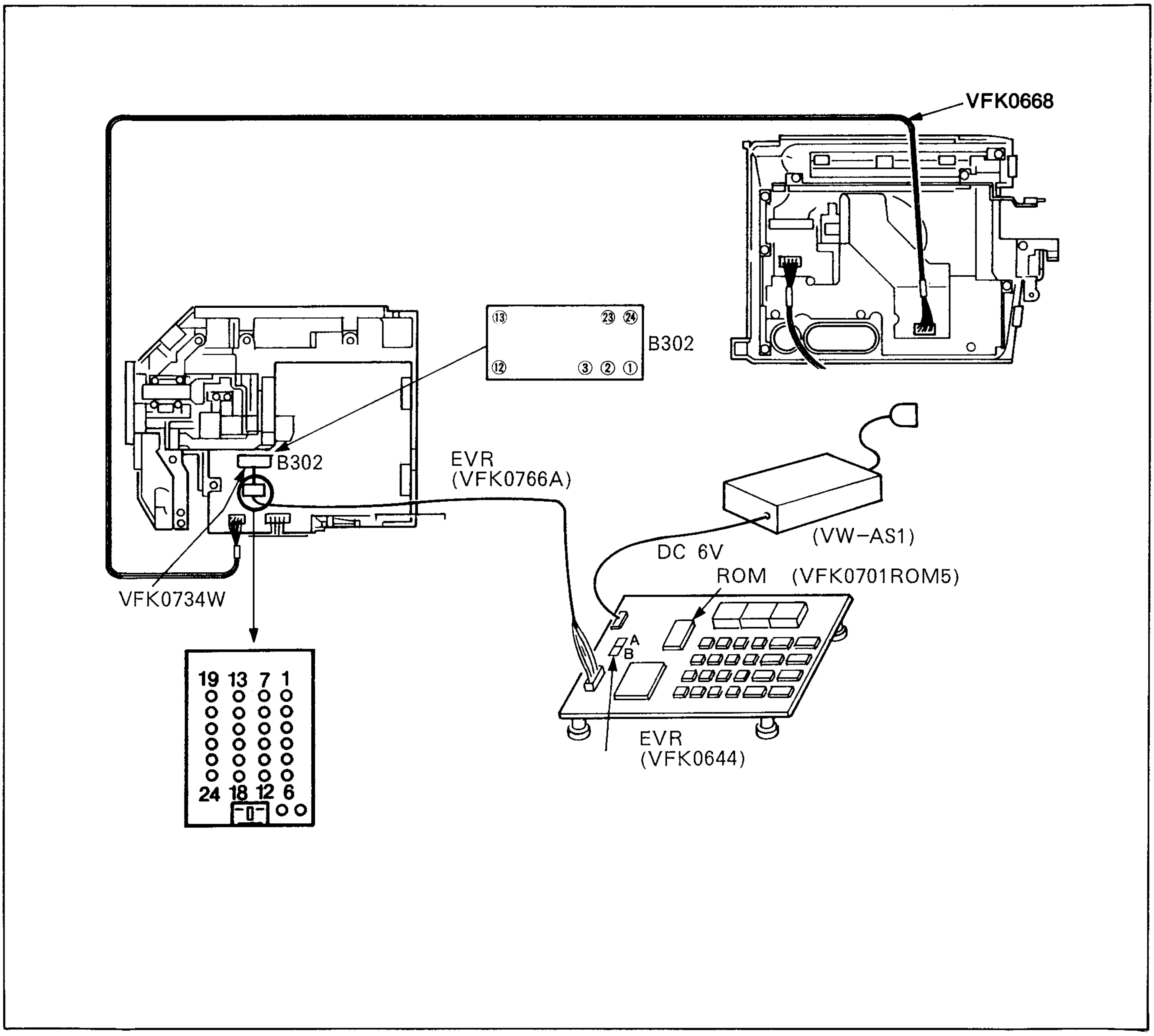
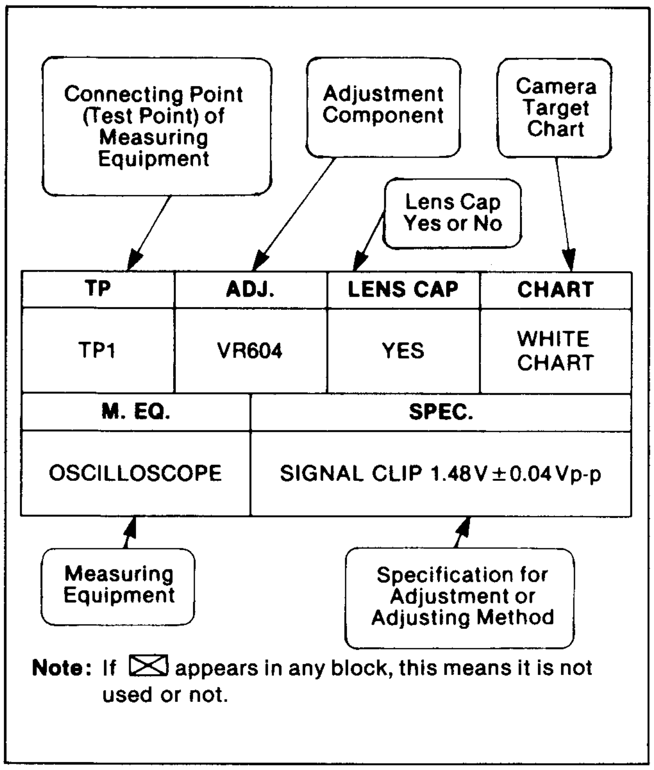

VFK0668
13
23 24
B302
12
3 2 1
B302
EVR
(VFK0766A)
(VW-AS1)
DC 6V
ROM (VFK0701ROM5)
VFK0734W
A
B
19 13 7 1
24 18 12 6
EVR
(VFK0644)

Fig. C6

1) Set the mode selector on the E.V.R. Fixture to "A" side. (Refer to Fig.C27)
2) Turn on the power SW of NV-S7/S700.
3) Turn on the power SW of E.V.R. fixture. The LED Display on E.V.R. Fixture will indicate 0 8,80,00. If this seqence is not indicated, push the Reset button and/or check the cable connections between EVR and CAMERA.

## HOW TO READ THE ADJUSTMENT PROCEDURES (FOR USE OF CONVENTIONAL VR)


Connecting Point (Test Point) of Measuring Equipment
Adjustment Component
Camera Target Chart
Lens Cap Yes or No
TP
ADJ.
LENS CAP
CHART
TP1
VR604
YES
WHITE CHART
M. EQ.
SPEC.
OSCILLOSCOPE
SIGNAL CLIP 1.48V±0.04Vp-p
Measuring Equipment
Specification for Adjustment or Adjusting Method

**Note:** If ⊠ appears in any block, this means it is not used or not.

Fig. C7

## HOW TO READ THE ADJUSTMENT PROCEDURES (FOR USE OF E.V.R.)

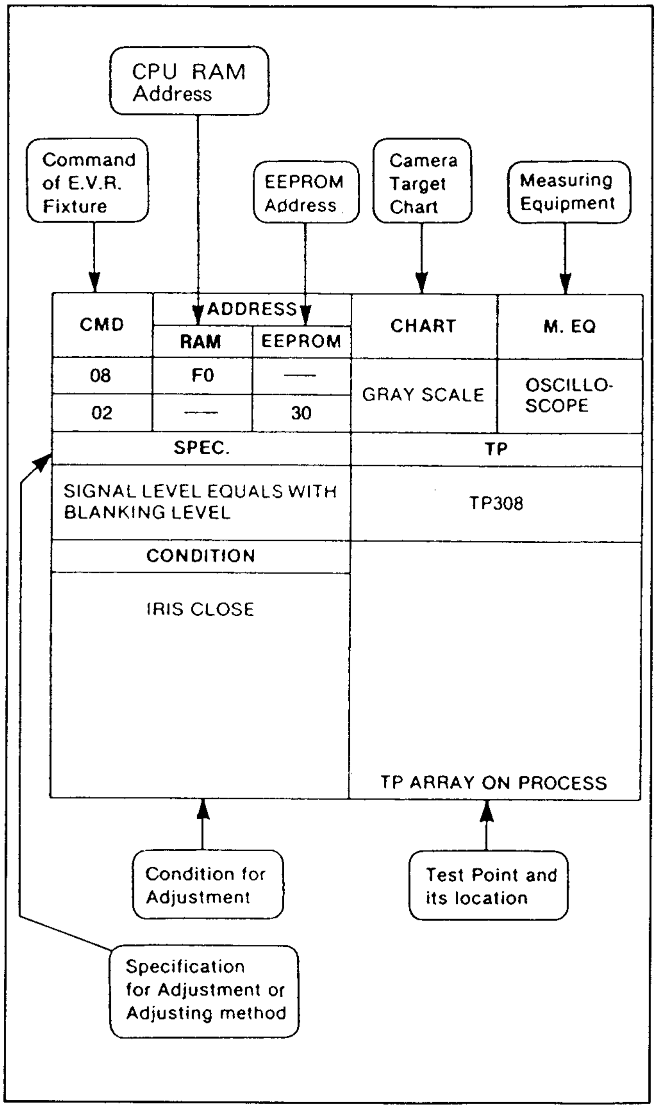

CPU RAM Address
Command of E.V.R. Fixture
EEPROM Address
Camera Target Chart
Measuring Equipment
CMD
ADDRESS
RAM
EEPROM
CHART
M. EQ
08
F0
—
02
—
30
GRAY SCALE
OSCILLO-SCOPE
SPEC.
TP
SIGNAL LEVEL EQUALS WITH BLANKING LEVEL
TP308
CONDITION
IRIS CLOSE
TP ARRAY ON PROCESS
Condition for Adjustment
Test Point and its location
Specification for Adjustment or Adjusting method

Fig. C8

1. DATA WRITING

   When EEPROM is replaced, all item needs re-adjustment.

   But If VFK0701ROM5 (New ROM) is installed to the EVR Fixture (VFK0644), when the pushing SHIFT 2 and "2" key together, Average Data is written in to EEPROM Automatically.

| | | UPPER | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| LOVER | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 0 | H DIGIT | B-Y GC 6000<br>3B | B-Y MAT 6000<br>87 | B-Y WB 6000<br>56 | B-Y limit 6000<br>2B | B-hili 6000<br>2E | BACKUP 1<br>72 | vap-cl<br>D0 | cnt lapt<br>25 |
| | L DIGIT | R-Y GC 6000<br>7A | R-Y MAT 6000<br>59 | R-Y WB 6000<br>40 | R-Y limit 6000<br>2B | R-hili 6000<br>4C | BACKUP 1<br>9E | vap-core<br>45 | g lap<br>83 |
| 1 | H DIGIT | B-Y GC 5100<br>3B | B-Y MAT 5100<br>8C | B-Y WB 5100<br>5E | B-Y limit 5100<br>2E | B-hili 5100<br>6A | BACKUP 2<br>80 | Hap-cor<br>80 | cnt ck<br>B0 |
| | L DIGIT | R-Y GC 5100<br>5F | R-Y MAT 5100<br>55 | R-Y WB 5100<br>4A | R-Y limit 5100<br>2E | R-hili 5100<br>60 | BACKUP 2<br>54 | hi-l, ap<br>FF | cnt ct<br>B0 |
| 2 | H DIGIT | B-Y GC 4500<br>38 | B-Y MAT 4500<br>7D | R-Y WB 4500<br>7B | B-Y limit 4500<br>6A | B-hili 4500<br>8A | BACKUP 3<br>8B | cnt2-up<br>06 | cnt lapk<br>25 |
| | L DIGIT | R-Y GC 4500<br>50 | R-Y MAT 4500<br>60 | R-Y WB 4500<br>47 | R-Y limit 4500<br>3B | R-hili 4500<br>4D | BACKUP 3<br>56 | cnt2-dn<br>D0 | g lapk<br>F8 |
| 3 | H DIGIT | B-Y GC 3600<br>42 | B-Y MAT 3600<br>78 | B-Y WB 3600<br>8D | B-Y limit 3600<br>71 | B-hili 3600<br>A1 | BACKUP 4<br>F0 | H+gain<br>10 | NOT USED |
| | L DIGIT | R-Y GC 3600<br>5C | R-Y MAT 3600<br>5C | R-Y WB 3600<br>58 | R-Y limit 3600<br>4D | R-hili 3600<br>67 | BACKUP 4<br>FF | Vap-gain<br>0D | NOT USED |
| 4 | H DIGIT | B-Y GC 3300<br>5C | B-Y MAT 3300<br>85 | B-Y WB 3300<br>8C | C-FLAG TH<br>66 | CSPDm<br>1E | agclim 2<br>A0 | c-g-ap<br>20 | NOT USED |
| | L DIGIT | R-Y GC 3300<br>3D | R-Y MAT 3300<br>53 | R-Y WB 3300<br>61 | CHSPD<br>08 | CSPDs<br>32 | EIS ON/OFF<br>83 | c-g-sw<br>55 | NOT USED |
| 5 | H DIGIT | B-Y GC 3100<br>5C | B-Y MAT 3100<br>85 | B-Y WB 3100<br>94 | B-limit 3100<br>7D | B-hili 3100<br>B6 | ped-h<br>04 | H-st/p<br>30 | NOT USED |
| | L DIGIT | R-Y GC 3100<br>3D | R-Y MAT 3100<br>5B | R-Y WB 3100<br>6B | R-limit 3100<br>67 | R-hili 3100<br>81 | ped-1H-ed/p<br>04 | H-e-d<br>40 | NOT USED |
| 6 | H DIGIT | B-Y GC 2800<br>4F | B-Y MAT 2800<br>85 | B-Y WB 2800<br>A4 | B-limit 2800<br>7D | B-hili 2800<br>B6 | ped-st<br>50 | V-st/b<br>30 | NOT USED |
| | L DIGIT | R-Y GC 2800<br>47 | R-Y MAT 2800<br>5B | R-Y WB 2800<br>8F | R-limit 2800<br>81 | R-hili 2800<br>B9 | ped-end<br>90 | V-ed/p<br>18 | NOT USED |
| 7 | H DIGIT | STH<br>FF | FF | Bwb Llimit<br>56 | B-limit SKY<br>00 | B-hili SKY<br>2B | NOT USED | H-st/b<br>4C | NOT USED |
| | L DIGIT | FF | FF | Rwb Llimit<br>42 | R-limit SKY<br>28 | R-hili SKY<br>4C | flag3<br>FD | sw<br>3E | NOT USED |
| 8 | H DIGIT | Hap gain<br>10 | Hap-core<br>80 | Bwb Hlimit<br>FF | B-limit TREE<br>6A | B-hili TREE<br>A1 | flag7<br>FF | Y-base<br>AC | NOT USED |
| | L DIGIT | Uap gain<br>10 | FF | Rwb Hlimit<br>FF | R-limit TREE<br>28 | R-hili TREE<br>3B | flag8<br>8F | Vap-core<br>05 | NOT USED |
| 9 | H DIGIT | Houwa-U<br>D0 | HAP-NO<br>3C | B-Y WB 4900<br>5E | BWBZ B<br>00 | BWBZ C<br>00 | Tree BK<br>03 | cntlap<br>77 | NOT USED |
| | L DIGIT | Houwa-L<br>B0 | PEAKLPF<br>00 | R-Y WB 4900<br>4A | RWBZ B<br>00 | RWBZ C<br>00 | P-WAITE<br>A0 | g-lap<br>DC | NOT USED |
| A | H DIGIT | palflag<br>41 | cls4<br>31 | DSP Vcr<br>03 | U puls<br>18 | Baxish Th<br>00 | st-alcp<br>05 | D-Aagc<br>50 | NOT USED |
| | L DIGIT | haloth<br>17 | cls8<br>71 | NOT USED | d puls<br>98 | Baxish Th<br>4D | st-alcn<br>05 | cntc<br>B0 | NOT USED |
| B | H DIGIT | B in<br>10 | VSTART<br>13 | TH 1<br>55 | TH 3<br>6F | PALBR<br>00 | open g 1<br>24 | Ychk h<br>A0 | NOT USED |
| | L DIGIT | R in<br>10 | ab set<br>93 | TH 2<br>22 | TH 4<br>10 | LOOPTH<br>02 | open g 2<br>24 | Ychk 1<br>28 | NOT USED |
| C | H DIGIT | Outb1<br>9F | ina1<br>F3 | OPS 4<br>31 | KOTEI A<br>20 | OPEN 1<br>8F | OPEN 3<br>BF | Yclpv 1<br>65 | NOT USED |
| | L DIGIT | Outb2<br>7B | ina2<br>E6 | ST<br>77 | KOTEI B<br>20 | OPEN 2<br>A7 | OPEN G 3<br>24 | darklv 1<br>00 | NOT USED |
| D | H DIGIT | Outb3<br>5C | ina3<br>CD | Seki<br>A0 | KOTEI C<br>00 | CLOSE 1<br>68 | CLOSE 3<br>48 | BACK UP<br>1C | NOT USED |
| | L DIGIT | Outb4<br>4F | ina4<br>B3 | AGC lim<br>B0 | KOTEI D<br>10 | CLOSE 2<br>58 | CLOSE G 3<br>44 | BACK UP<br>3F | NOT USED |
| E | H DIGIT | Outb0<br>0B | close<br>00 | SW-set<br>83 | keisha<br>03 | ag cnt1<br>3F | CORE<br>03 | NOT USED | NOT USED |
| | L DIGIT | T-gain<br>24 | open<br>00 | MIX<br>03 | AG-CENTER<br>9F | f cnd<br>48 | CLOSE G2<br>64 | NOT USED | NOT USED |
| F | H DIGIT | A/D IN<br>7F | AF-ap<br>C7 | OR bias<br>3D | R-YKB<br>28 | LOW CLIP<br>7F | OPS8<br>71 | clpnax<br>F8 | NOT USED |
| | L DIGIT | AF-Vn<br>5B | AF-AMP<br>C7 | PWM-B<br>BD | Y-GAIN<br>19 | B-YKB<br>4F | CLOSE G3<br>84 | NOT USED | NOT USED |

Fig. C9 Address map of all Average data for NV-S7/S700 PAL

## 2. VTR CARRIE BALANCE ADJUSTMENT

| CMD | ADDRESS | | CHART | M. EQ. |
|---|---|---|---|---|
| | RAM | EEPROM | | |
| 18 | R:B8<br>B:BB | — | | VECTOR-SCOPE |
| 12, 02 | — | R−Y:3F(L)<br>B−Y:4F(H) | | |
| SPEC. | | | TP | |
| CENTRE OF ECTORSCOPE | | | VIDEO OUT | |

Purpose:
Set chroma signal black and white level.

Symptom of Misadjustment:
With a large shift, color is added to Black and white areas in the picture.

Note:
Refer to preparation for connection of EVR.

1. Aim the camera at the white chart and push "SHIFT 1 + 8" keys.
2. Connect the vectorscope to video out.
3. Place the unit to "IRIS CLOSE" by pushing "SHIFT 1" + "1" keys together.
4. Push "CMD", "1" and "8" keys.
5. Push "ADR", "B" and "8" keys.
6. Push "INC" or "DEC" so that vector comes to centre as shown in Fig.C10.
7. Push "CMD", "1" and "2" keys.
8. Push "ADR", "3" and "F" keys.
9. Push "SET" key to write its adjusted data in EEPROM.
10. Change "CMD" to "18" and "ADR" to "BB".
11. Push "INC" or "DEC" so that vector comes to conter as shown in Fig.C10.
12. Push "CMD", "0" and "2" keys.
13. Push "ADR", "4" and "F" keys.
14. Push "SET" key.
15. Push "SHIFT 1" + "A".

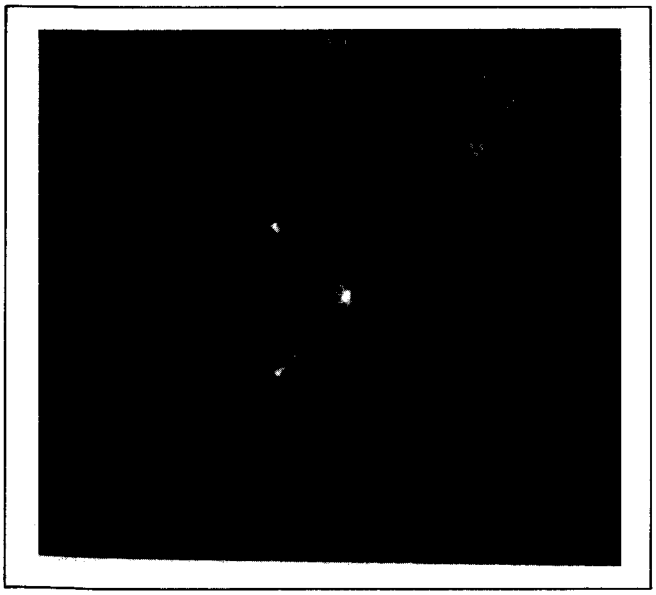
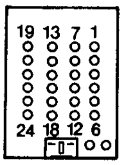


Fig. C10

## 3. HALL AMP ADJUSTMENT

| CMD | ADDRESS | | CHART | M. EQ. |
|---|---|---|---|---|
| | RAM | EEPROM | | |
| 18 | B5 | — | | D.V.M |
| | VR701 | — | | |
| 02 | — | IF | | |
| SPEC. | | | TP | |
| VOLTAGE B302-9 (VFK0734W-PIN 9) = VOLTAGE B302-18 (VFK0734W-PIN 18)<br>VOLTAGE B302-9 (VFK0734W-PIN 9) = VOLTAGE B302-7 (VFK0734W-PIN 7) | | | B302-9 (PIN Number 9 of VFK0734W)<br>VFK0734W<br> | |

Purpose:
Hall Amp Adjustment

Symptom of Misadjustment:
Hunting occurs or focus stops.

1. Connect the VFK0734W to B302 and then connect the VFK0766A to VFK0734W and EVR.
2. Connect the jumper wire between B302−11 (VFK0734W−PIN11) and GND for Making IRIS close (Do not use EVR for IRIS close).
3. Push (CMD),(1) and (8).
4. Push (ADR),(B) and (5).
5. Push (INC) or (DEC) key so that voltage at B302−9 (VFK0734W−PIN9) become Vref 1 +− 10m (Vref 1 = B302−18(VFK0734W−PIN18))
6. Push (CMD),(0) and (2).
7. Push (ADR),(1) and (F).
8. Push (SET).
9. Connect the jumper wire between B302−11 (VFK0734W−PIN11) and B302−14(VFK0734W−PIN1 for Making IRIS open.
10. Adjust the VR701 so that Voltage at B302−9 (VFK0734W−PIN9)becomes Vref 3 +− 30mV. (Vref 3 = B302−7(VFK0734W−PIN7))

## 4. PLL FREQUENCY ADJUSTMENT

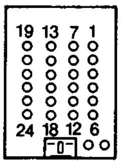
| TP | ADJ. | LENS CAP | CHART |
|---|---|---|---|
| CL203 | C223 | | |
| M. EQ. | | SPEC. | |
| FREQUENCY COUNTER | | 12.875000MHz+−100Hz | |

Purpose:
CCD Drive pulse adjustment

Symptom of Misadjustment:
Picture sync misoperation.

## 5. PWM ADJUSTMENT

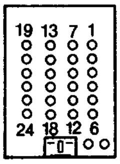
| CMD | ADDRESS | | CHART | M. EQ. |
|---|---|---|---|---|
| | RAM | EEPROM | | |
| 18 | B7 | — | | D.V.M |
| 02 | — | 2F (L) | | |

| SPEC. | TP |
|---|---|
| | B302-9<br>(VFK0734W-PIN 9)<br>VFK0734<br> |

1. Set the IRIS to "OPEN"(SHIFT 1 + 0).
2. Connect the D.V.M. to B302-9(VFK0734W-PIN9).
3. Push "CMD" key and then push "1" and "8". (Setting Command 18)
4. Push "ADR" key and then push "B" and "7". (Setting Address B7)
5. Push "INC" or "DEC" key so that Voltage level at B302-9(VFK0734W-PIN9) becomes Vref 1 +−50mV. (Vref 1 = Voltage at B302-7(VFK0734W-PIN7)−500mV)
6. Set the IRIS to "CLOSE".(SHIFT 1 + 1)
7. Set the IRIS to "OPEN". (SHIFT 1 + 0)
8. Push "CMD" key, "1" and "8" keys.
9. Push "ADR" key, "B" and "7" keys.
10. Push "INC" or "DEC" key so that Voltage level at B302-9(VFK0734W-PIN9) becomes. Vref 2 +−20mV. (Vref 2 = B302-7(VFK0734W-PIN7)−140mV)
11. Push "CMD" key, "0" and "2" keys.
12. Push "ADR" key, "2" and "F" keys.
13. Push "SET" key.
14. **Push "SHIFT 1 + A".**

## 6. ZOOM ENCODER AND FOCUS ENCODER ADJUSTMENT

| CMD | ADDRESS | | CHART | M. EQ. |
|---|---|---|---|---|
| | RAM | EEPROM | | |
| 18 | T: B4<br>W: B3 | — | object:<br>1m (Hunting chart) | DIGITAL VOLTMETER |
| 12 | — | T: 1F (H) | | |
| 02 | — | W: 0F (L) | | |

| SPEC. | TP |
|---|---|
| To be calculated | B302-8 (VF0734W-8)<br>B302-17 (VFK0734W-17)<br>VFK0734W<br> |
| **CONDITION** | |
| • Focus Manual (SHIFT 1+7) | |

Note:
1) Unless you replaced zoom Encoder, 3rd lens (1) unit or 4th moving frame (1) unit, do not perform this adjustment. (Because this adjustment is critical).
2) Regarding the connection of EVR, refer to preparation.(Fig.C6)

## ZOOM ENCODER AND FOCUS ENCODER ADJUSTMENT

Note:
1) Unless you replaced zoom encoder, 3rd lens (1) unit or 4th moving frame (1) unit, do not perform this adjustment.
2) Regarding the connection of EVR, refer to preparation.

(Precise Adjustment for Zoom Encoder)

1. Check the voltage on B302-8(VFK0734-PIN8) and B302-17(VFK0734W-PIN17) before replaced lens unit.

   For example:
   B302-8(VFK0734W-PIN8) : 3.652V
   B302-17(VFK0734W-PIN17) : 1.456V

2. Note the potential difference between B302-8 (VFK0734W-PIN8) and B302-17(VFK0734W-PIN17).

   For example:
   3.652 − 1.456 = 2.196V

3. Turn the power sw off.
4. Replace lens unit.
5. Loosen 2 screws of Focus encoder C.B.A. and move C.B.A. to center position as shown in Fig.C11. Then tighten 2 screws.

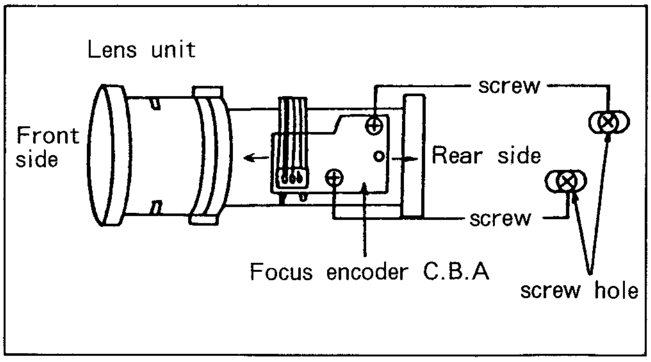


Fig. C11

6. Turn the power sw on.
7. Set the Focus to Manual focus. (Push SHIFT 1 + 7)
8. Set the Zoom to fully TELE side.(Push "SHIFT2+7")
9. Aim the unit at Hunting chart from 1m
10. Press the Focus (−) button until movement stops.
11. Push (CMD),(1),(8)
12. Push (ADR),(B),(4)
13. Push (INC) or (DEC) until the focus is in the best position.

* NOTE:How to check the best focus position.
(1 ).Focus does not change when change the data for address of "B4".
So focus will be change when the WIDE button pushed after change the data of address "B4".

(2 ).When the change the data for address of "B4", please push WIDE button little bit and then push the TELE button for confirm the focus at fully tele side. (Push "SHIFT2+5")

14. When best focus position is found, store the data to EEPROM as follows.
    - * Push (CMD),(1),(2)
    - * Push (ADR),(1),(F)
    - * Push (SET)

15. Check the Voltage at B302−17(VFK0734W−PIN17). Subtact the Voltage which is noted step 2 from step 15.

For example:
If the Voltage at B302−8(VFK0734W−PIN8) is 3.662V
3.662 − 2.196 = 1.446V(example).

Set the Voltage at B302−17(VFK0734W−PIN17) to 1.446V with EVR as follows.

* Push (CMD),(1),(8)
* Push (ADR),(B),(3)
* Push (INC) or (DEC) so that Voltage at B302−17(VFK0734W−PIN17) becomes 1.446V.

16. Store the data to EEPROM as follows.
* Push (CMD),(0),(2)
* Push (ADR),(0),(F)
* Push (SET)

17. Confirm the focus when zooming to wide side.

① Focus is good−go to step 18.

② Focus is no good around full WIDE side.

Adjust the wide side voltage as follows.

* Push (CMD),(1),(8)
* Push (ADR),(B),(3)
* Push (INC) or (DEC) until the focus is in the best position.

NOTE: How to check the best focus position.

(1 ). Focus does not change when change the data for address of "B3".
So focus will be change when TELE button pushed,after change the data for address of "B3".

(2 ).When change the data for address of "B3", Please push the TELE button little bit and then push the WIDE button for confirm the focus at fully wide side.

Store the data to EEPROM as follows.
* Push (CMD),(0),(2)
* Push (ADR),(0),(F)
* Push (SET)

Confirm the focus (from TELE to WIDE)

If focus is still no good, return to step 5 and change the focus encoder position as follows.

How to change the focus encoder position.

Adjust the focus by (+),(−) button,

* If (−) focus button is pushed and focus become good, move focus encoder to front side.

* If (+) focus button is pushed and focus become good, move focus encoder to rear side.

Then return to step 6.

③ :Focus is no good between TELE to WIDE.

Stop the Zoom where focus is no good. And push focus (+) or (−) button.

* If (−) focus button is pushed and focus become good, move focus encoder to front side.
Then return to step 6.

* If (+) focus button is pushed and focus become good, move focus encoder to rear side.
Then return to step 6.

18. Confirm back focus with far object.
If back focus is no good, repeat from step 5.

## 7. V−SUB ADJUSTMENT (NORMAL)

| TP | ADJ. | LENS CAP | CHART |
|---|---|---|---|
| ╳ | VR201 | NO | HALOGEN LAMP |
| **M. EQ.** | | **SPEC.** | |
| MONITOR TV | | NO BLOOMING | |

(1) Zoom all the way in (full tele position or full wide position) and aim the camera at the Halogen Lamp as shown in Fig.C12.

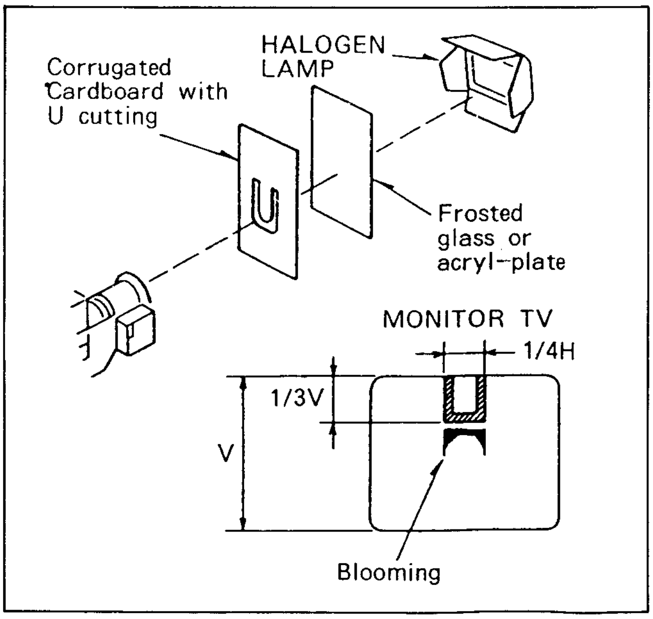

HALOGEN LAMP
Corrugated Cardboard with U cutting
Frosted glass or acryl−plate
MONITOR TV
1/4H
1/3V
V
Blooming

Fig. C12

(2) Set the High Speed Shutter SW to "OFF" position.
(3) Diffuse the incoming light using frosted glass or acryl plate. Place the cardboard which has been cut to "U" shape as shown in Fig.C12 between the diffusion plate and the camera.

(4) Adjust VR203 so that blooming just disappears. (If blooming does not disappear completely, adjust for least blooming)

(5) Confirm that the monitored picture does not contain Blooming in both High Speed Shutter "ON" and "OFF" modes even if the camera moves as shown in Fig.C13.

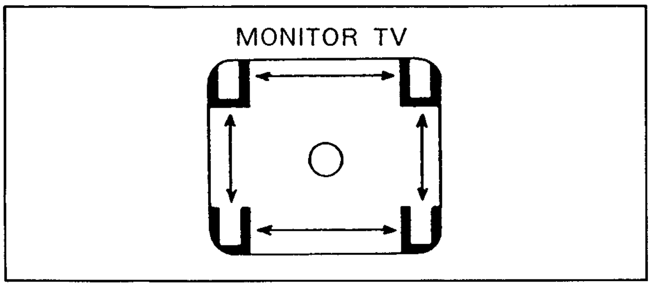
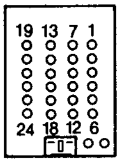


Fig. C13

## 8. PEDESTAL LEVEL ADJUSTMENT

| CMD | ADDRESS | | CHART | M. EQ. |
|---|---|---|---|---|
| | RAM | EEPROM | | |
| 18 | BA | — | | OSCILLO-SCOPE |
| 12 | — | 4F | | |
| SPEC. | | | TP | |
| A=0mV±10mV | | | B302-6 (VFK0734W-6)<br>VFK0734W<br> | |

1.Push "SHIFT 1 + 9".
2. Cover the lens.
   Set the AGC MAX condition. (by pushing "SHIFT 1" + 3 together.)
3. Connect the oscilloscope to B303-6 (VFK0734W-PIN6).
4. Push "CMD" key, "1" key and "8" key of EVR.
5. Push "ADR" key, "B" key and "A" key.
6. Push "INC" key or "DEC" key so that "A" level becomes 0mV.
7. Push "CMD", "1" and "2" keys.
8. Push "ADR", "4" and "F" keys.
9. Push "SET" key.
10. Reset the AGC MAX condition.(SHIFT 1 + B)
11. Push "SHIFT 1 + A" key

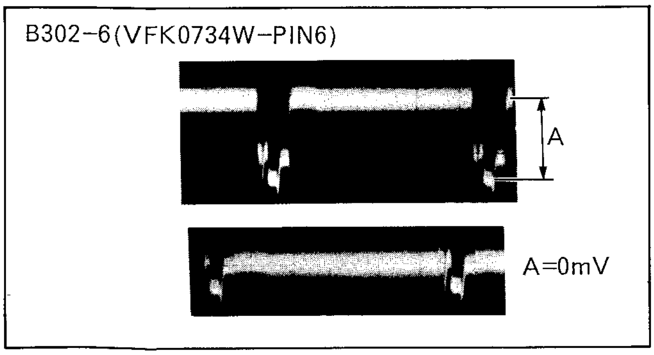
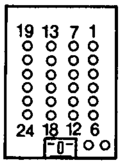


Fig. C14

## 9. AGC ADJUSTMENT

| CMD | ADDRESS | | CHART | M. EQ. |
|---|---|---|---|---|
| | RAM | EEPROM | | |
| 18 | BC | — | GRAY SCALE CHART | OSCILLO-SCOPE |
| 12 | — | 6A | | |
| SPEC. | | | TP | |
| 250mV±20mV | | | B302-5 (VFK0734W-PIN 5)<br>B302-20 (VFK0734W-PIN 20)<br>VFK0734W<br> | |

Purpose:
Set standard signal gain.

Symptom of Misadjustment:

The picture is sometimes too dark too bright.

< Preset for AGC Adjustment >

1. Set the IRIS to MANUAL (SHIFT 1 + 9)
2. Aim the camera at Gray Scale Chart.
3. Connect the oscilloscope to B302-5 (VFK0734W-5).
4. Push (CMD),(1),(8)
5. Push (ADR),(D),(E)
6. Push (INC) or (DEC) so that signal level at B302-5(VFK0734W-PIN5) becomes 250+-10mV.

< AGC Adjustment >

7. Push (CMD),(1),(8)
8. Push (ADR),(B),(C)
9. Push (INC) or (DEC) so that signal level at B302-20(VFK0734W-PIN20) becomes 250+-10mV.
10. Push (CMD),(1),(2)
11. Push (ADR),(6),(A)
12. Push (SET)

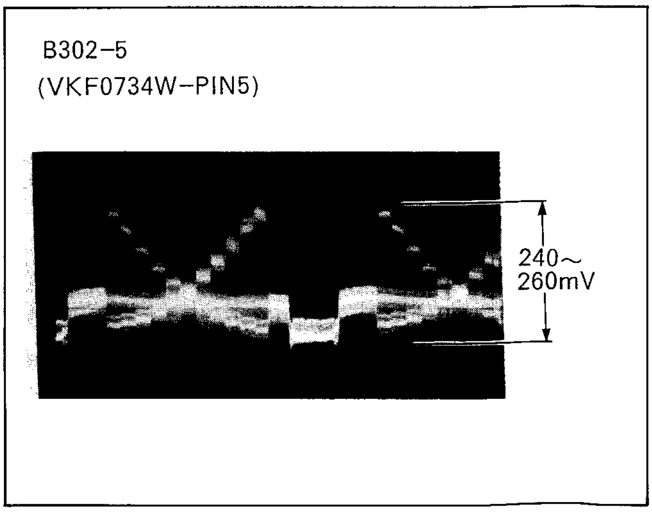


Fig. C15-1

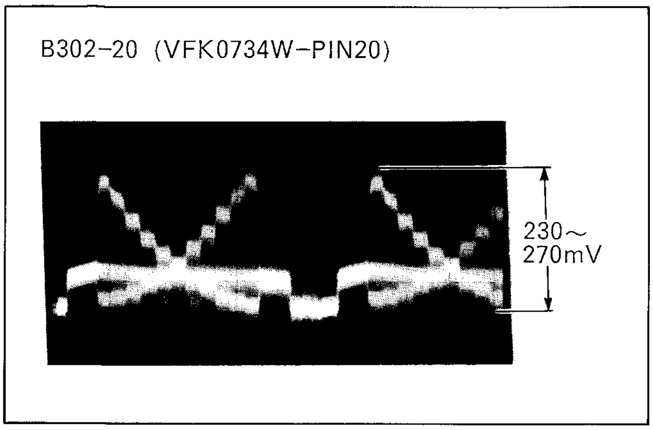
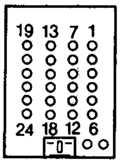


Fig. C15-2

## 10. A/D INPUT LEVEL ADJUSTMENT

| CMD | ADDRESS | | CHART | M. EQ. |
|---|---|---|---|---|
| | RAM | EEPROM | | |
| 18 | B1 | — | GRAY SCALE CHART | OSCILLO-SCOPE |
| 12 | — | 0F | | |
| SPEC. | | | TP | |
| 1.2V±40mV | | | B302-5<br>(VFK0734W-PIN 5)<br>B302-6<br>(VFK0734W-PIN6)<br> | |

Purpose:
A/D converter input Level adjustment.

Symptom of Misadjustment:
The picture becomes too dark or too bright.

< Preset for A/D Input Level Adjustment >

1. Set the IRIS to MANUAL (SHIFT 1 + 9).
2. Aim the camera at Gray Scale Chart.
3. Connect the Oscilloscope to B302–5(VFK0734W–PIN5).
4. Push (CMD),(1),(8)
5. Push (ADR),(D),(E)
6. Push (INC) or (DEC) so that signal level at B302–20(VFK0734W–PIN20) becomes 250+–10mV.

< A/D INPUT LEVEL ADJUSTMENT >

7. Push (CMD),(1),(8)
8. Push (ADR),(B),(1)
9. Push (INC) or (DEC) so that signal level at B302–6(VFK0734W–PIN6) becomes 1.2V+–40mV.
10. Push (CMD), (1), (2).
11. Push (ADR), (0), (F).
12. Push (SET).

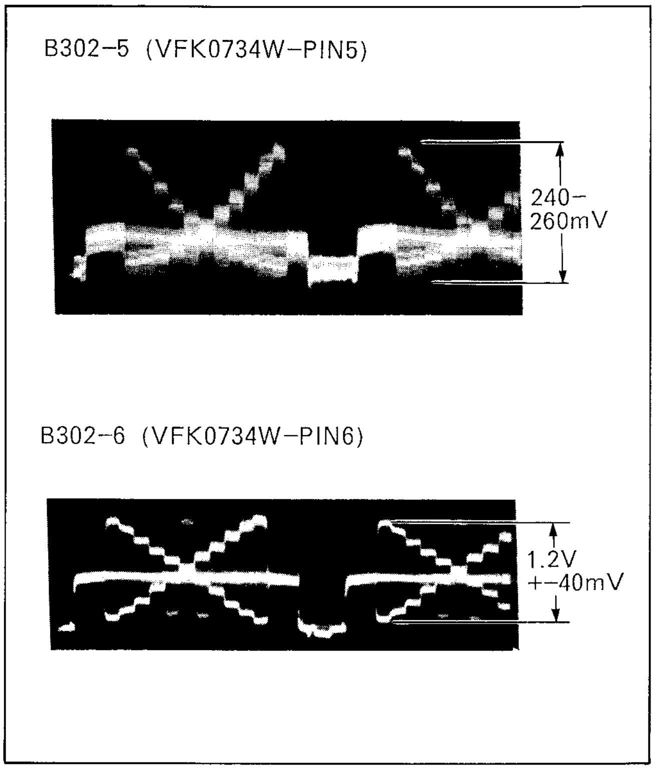
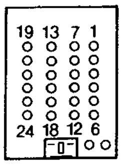


Fig. C16

## 11. ALC ADJUSTMENT

| CMD | ADDRESS | | CHART | M. EQ. |
|---|---|---|---|---|
| | RAM | EEPROM | | |
| 18 | D4 | — | GRAY SCALE CHART | OSCILLO-SCOPE |
| 02 | — | 2C | | |
| SPEC. | | | TP | |
| 1.20V±40mV | | | B302-6<br>(VFK0734W-PIN 6)<br> | |

Note:
Perform this adjustment after finishing the AGC and A/D INPUT LEVEL ADJUSTMENT.

Purpose:
ALC level adjustment.

Symptom of Misadjustment:
The picture is too white or too dark.

1. Set the IRIS to Auto (SHIFT 1 + A).
2. Aim the camera at Gray Scale Chart.
3. Connect the oscilloscope to B302–6(VFK0734W–PIN6).
4. Push "CMD", "1" and "8" keys.
5. Push "ADR", "D" and "4" keys.
6. Push "INC" or "DEC" key so that waveform is 1.20+–40mV.

7. Push "CMD", "0" and "2" keys.
8. Push "ADR", "2" and "C" keys.
9. Push "SET" key to write its adjusted data in EEPROM.

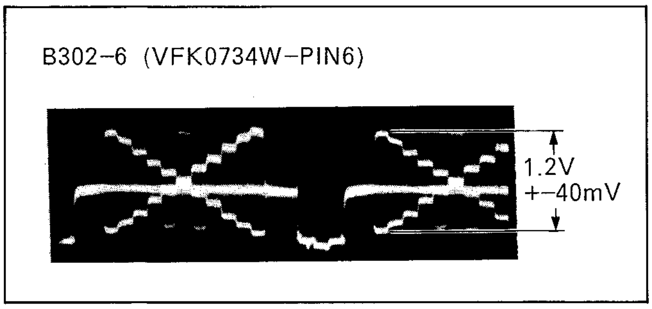


Fig. C17

## 12. MANUAL IRIS ADJUSTMENT

| NO. | ITEM | EEPROM ADDRESS | FORMULA | CMD | RESULT OF CALCULATION |
|---|---|---|---|---|---|
| 1 | OPEN1 | 4C<br>(High digit) | ADR (2C)+24 | READ: 04<br>WRITE: 12 | |
| 2 | OPEN2 | 4C<br>(Low digit) | ADR (4C)+24 | READ: 14<br>WRITE: 02 | |
| 3 | OPEN3 | 5C<br>(High digit) | ADR (4C)+24 | READ: 04<br>WRITE: 12 | |
| 4 | CLOSE1 | 4D<br>(High digit) | ADR (2C)−16 | READ: 04<br>WRITE: 12 | |
| 5 | CLOSE2 | 4D<br>(Low digit) | ADR (4D)−16 | READ: 14<br>WRITE: 02 | |
| 6 | CLOSE3 | 5D<br>(High digit) | ADR (4D)−16 | READ: 04<br>WRITE: 12 | |

NOTE1: ADR (2C) = ALC Data

(How to calculate and enter the data into EEPROM)

NOTE2:
If the ALC Adjustment is incorrect the Manual IRIS SET UP will also be incorrect.
Be sure to carry out the ALC Adjustment procedure before doing the Manual IRIS Adjustment.

Push "SHIFT2+9" key simultaneously.
(All formulas for Manual Iris Adjustment are performed and results stored in EEPROM automatically.)

* Example
Item 1 : OPEN 1
Formula : ADR(2C)+24

Read out the data From Address (2C) of EEPROM as follows.

* Select read command (04) => Push (CMD),(0),(4)
* Select Address (2C) => Push (ADR),(2),(C)
* Push (SET) to Read the data => Push (SET)

When the (SET) key is pushed, the data LED will indicate the data of Address (2C).
Convert this data to decimal.
If data LED indicate(6D).
HEX(6D)=109(Decimal Value)

Now using the formula (2C)+24 Calculate the Reset. (Substitute the Decimal Value for the HEX data in (2C)109+24=133.

Convert the Result to a HEX Value using the table (Fig.C18)
133(decimal)=85(in HEX CODE)

Store the above HEX Value in the EEPROM. Address(4C) High digit as follows.

* Select command(C12) => Push (CMD),(1),(2)
* Select Address(4C) => Push (ADR),(4),(C)
* Set the data (85) => Push (DATA),(8),(5)
* Push (SET) to write the data => Push (SET)

Note3:
Priority of Formula

ADR "2C"(Low digit) = ALC Adjustment

1. OPEN 1 : "4C"(High digit) =
ADR "2C"(Low digit)+24

2. OPEN 2 : "4C"(Low digit) =
ADR "4C"(High digit)+24

3. OPEN 3 : "5C"(High digit) =
ADR "4C"(Low digit)+24

ADR "2C"(Low digit) = ALC Adjustment

4. CLOSE 1 : "4D"(High digit) =
ADR "2C"(Low digit)−16

5. CLOSE 2 : "4D"(Low digit) =
ADR "4D"(High digit)−16

6. CLOSE 3 : "5D"(High digit) =
ADR "4D"(Low digit)−16

| Hexadecimal lower digit<br>Hexadecimal upper digic | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | b | C | ② d | E | F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 1 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
| 2 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 |
| 3 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 |
| 4 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 |
| 5 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 |
| ① 6 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 |
| 7 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 | 121 | 122 | 123 | 124 | 125 | 126 | 127 |
| 8 | 128 | 129 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 |
| 9 | 144 | 145 | 146 | 147 | 148 | 149 | 150 | 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 |
| A | 160 | 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 | 169 | 170 | 171 | 172 | 173 | 174 | 175 |
| b | 176 | 177 | 178 | 179 | 180 | 181 | 182 | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 | 191 |
| C | 192 | 193 | 194 | 195 | 196 | 197 | 198 | 199 | 200 | 201 | 202 | 203 | 204 | 205 | 206 | 207 |
| d | 208 | 209 | 210 | 211 | 212 | 213 | 214 | 215 | 216 | 217 | 218 | 219 | 220 | 221 | 222 | 223 |
| E | 224 | 225 | 226 | 227 | 228 | 229 | 230 | 231 | 232 | 233 | 234 | 235 | 236 | 237 | 238 | 239 |
| F | 240 | 241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | 249 | 250 | 251 | 252 | 253 | 254 | 255 |

For example: If indication of EVR is "6D" (as upper digit is "6" and lower digit is "D"), a decimal value of "109" is obtained from the intersection of ① and ② in the above table.

Fig. C18 Hexadecimal–Decimal Conversion Table

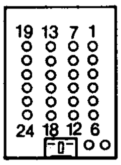
(Hexadecimal-Decimal Conversion Table)

For some of adjustment items, calculation of hexadecimal data (indicated on LED of EVR Fixture) is needed to obtain the adjustment data.

In these cases, convert the hexadecimal value to decimal value before calculation and after calculation is finished reconvert the result to hexadecimal to obtain the adjustment data. Write the new hexadecimal adjustment data into EEPROM.

A hexadecimal-decimal conversion table is shown in Fig. C18.

## 13. Y CLIP LEVEL ADJUSTMENT

| CMD | ADDRESS | | CHART | M. EQ. |
|---|---|---|---|---|
| | RAM | EEPROM | | |
| 18 | B9 | — | WHITE CHART | OSCILLO-SCOPE |
| 02 | — | 3F | | |
| **SPEC.** | | | **TP** | |
| V/S=7.7:3 | | | B302-4<br>(VFK0734W-PIN 4)<br>VFK0734W<br> | |

1. Set the IRIS to "OPEN"(SHIFT 1 + 0).
2. Aim the camera at White Chart.
3. Connect the Oscilloscope to B302–4(VFK0734W–PIN4).
4. Push "CMD" key and then push "1" and "8".
5. Push "ADR" key and then push "B" and "9".
6. Push "INC" or "DEC" key so that level ratio of V and S becomes 7.7:3.
7. Push "CMD" key and then push "0" and "2".
8. Push "ADR" key and then push "3" and "F".
9. Push "SET" key.

B302–4 (VFK0734W–PIN4)

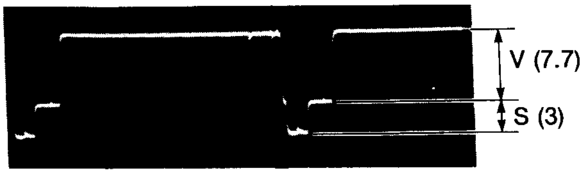


Fig. C19

## 14. INDOOR WHITE BALANCE ADJUSTMENT

| CMD | ADDRESS | | CHART | M. EQ |
|---|---|---|---|---|
| | RAM | EEPROM | | |
| 09 | BB (R-Y)<br>AB (B-Y) | — | WHITE CHART | VECTOR-SCOPE |
| 02 | — | 25 (R-Y) | | |
| 12 | — | 25 (B-Y) | | |
| **SPEC.** | | | **TP** | |
| CENTRE OF VECTORSCOPE | | | VIDEO OUT | |

Purpose:
Set standard white level for each color temperature.

Symptom of Misadjustment:
White becomes bluish or reddish.

1. Connect the Video Out to Vectorscope.
2. Aim the camera at white chart. And push SHIFT 1+8 or push the white balance button (connect the camera operation unit to process C.B.A.) for white set (confirm vectors came to center).
3. Set the command "09" by pushing "CMD", "0" and "9" keys.
4. Set the Address to "BB" by pushing the "ADR" key, "B" key twice.
5. Push the "SET" key to read out the data from proper address of CPU–RAM.
   And then change command to "02" by pushing the "CMD" key and "0" key and "2" key, and change the address to "25" by pushing "ADR" key, "2" and "5" key (Do not change the data).
6. Push the "SET" key to write the data to EEPROM.
7. Change the command "09" by pushing "CMD","0" and "9" keys.
8. Set the address to "AB" by pushing the "ADR" key, "A" key and "B" key.
9. Push the "SET" key to read out the data from proper address of CPU–RAM.
   And then change command to "12" by pushing the "CMD" key and "1" key and "2" key, and change the address to "25" by pushing "ADR" key, "2" key and "5" key. (Do not change the data).
10. Push the "SET" key to write the data to EEPROM.

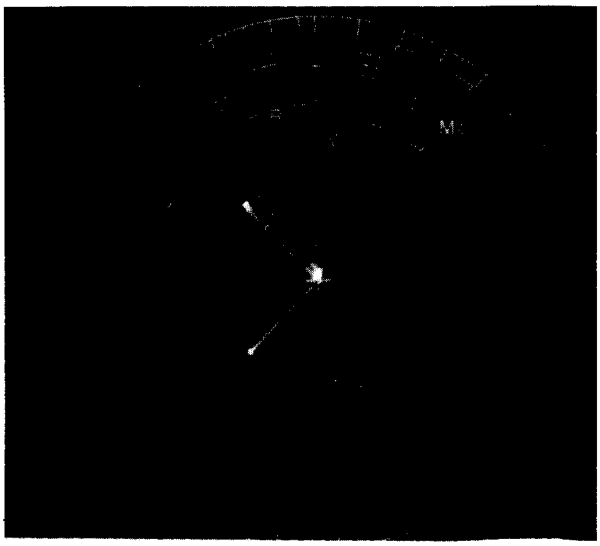


Fig. C20

## 15. COLOUR PHASE AND GAIN ADJUSTMENT (INDOOR)

| CMD | ADDRESS | | CHART | M. EQ. |
|---|---|---|---|---|
| | RAM | EEPROM | | |
| 08 | 95 (R-Y G)<br>97 (R-Y P)<br>94 (B-Y G)<br>96 (B-Y P) | — | COLOUR BAR CHART | VIDEO OUT |
| 02 | — | 05 (R-Y G)<br>15 (R-Y P) | | |
| 12 | — | 05 (B-Y G)<br>15 (B-YP) | | |
| SPEC. | | | TP | |
| | | | RED: 100+ −3 degree/PHASE<br>169% + −10%/ GAIN<br>(RED/BURST)<br>166+ −3 degree/PHASE<br>131% + −10%/ GAIN<br>(Yellow/BURST) | |

Note:

For connection of EVR, refer to preparation (Fig.C6) and initial setting.

1. Aim the camera at colour chip chart.
2. Connect the Video Out to Vectorscope.

< R−Y GC >(Step 3 to 8 are R−Y gain Adjustment)

3. Set the command to "08" by pushing the "CMD" key, "0" key and "8" key.
4. Set the address to "95" (R−Y GC) by pushing the "ADR" key, "9" key and "5" key.
5. Push the "INC" or "DEC" key so that phase of Red and Yellow vectors approaches spec.
6. When best point is found, set the command to "02" by pushing the "CMD" key, "0" key and "2" key.
7. Set the address to "05" by pushing the "ADR" key, "0" key and "5" key.
8. Push the "SET" key.

< R−Y PHASE >

(Step 9 to 12 are R−Y phase Adjustment)

9. Change the command to "08", and change the address to "97" (Same procedures as 3, 4).
10. Push the "INC" key or "DEC" key so that phase of Red and Yellow vectors approaches spec.
11. When best point is found, change the command to "02", and change the address to "15" (Same procedures as 6, 7).
12. Push the "SET" key.

< B−Y GC >

(Step 13 to 16 are B−Y gain Adjustment)

13. Change the command to "08" and change the address to "94" (B−Y GC) (Same procedures as 3, 4).
14. Push the "INC" key or "DEC" key so that gain of Red and Yellow vectors approaches the spec.
15. When best point is found, change the command to "12" and change the address to "05". (Same procedures as 6, 7)
16. Push the "SET" key.

< B−Y PHASE >

(Step 17 to 20 are B−Y PHASE Adjustment)

17. Change the command to "08" and change the address "96" (B−Y PHASE)(Same procedures as 3, 4).
18. Push the "INC" key or "DEC" key so that gain of Red and Yellow vectors approaches spec.
19. When best point is found, change the command to "12" and change the address to "15" (Same procedures as 6, 7).
20. Push the "SET" key.
21. Repeat steps 3 to 20 until all vectors are within spec as shown in Fig.C21.

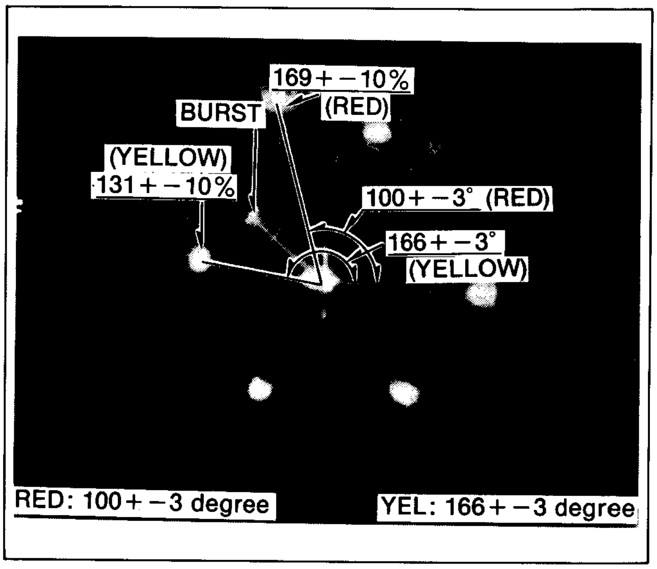


Fig. C21

## 16. OUTDOOR WHITE BALANCE ADJUSTMENT

| CMD | ADDRESS | | CHART | M. EQ |
|---|---|---|---|---|
| | RAM | EEPROM | | |
| 09 | BB (R-Y)<br>AB (B-Y) | — | WHITE CHART | VECTOR-SCOPE OR OSCILLO-SCOPE |
| 02 | — | 21 (R-Y) | | |
| 12 | — | 21 (B-Y) | | |
| SPEC. | | | TP | |
| VECTOR COMES CENTRE OR WAVEFORM IS MINIMIZED | | | VIDEO OUT | |
| CONDITION | | | | |
| TEMPERATURE CONVERSION FILTER: VFK0713 (C12)<br>VFK0716 (C2)<br>IRIS: ALC | | | | |

Purpose:
Set standard white level for each color temperature.

Symptom of Misadjustment:
White becomes bluish or reddish.

1. Connect the Video Out to the Vectorscope.
2. Cover the lens with colour temperature conversion filter VFK0713 and VFK0716.
3. Aim the camera at white chart and push the SHIFT 1 + 8 or push the white balance button (connect the camera operation unit to process C.B.A.) for white set. (confirm vectors moved to centre)
4. Set the command "09" by pushing "CMD", "0" and "9" keys.
5. Set the address to "BB" by pushing the "ADR" key, "B" key twice.
6. Push the "SET" key to read out the data from proper address of CPU-RAM. And then change command to "02" by pushing the "CMD" key and "0" key and "2" key and change the address to "21" by pushing "ADR" key, "7" key and "1" key. (Do not change the data)
7. Push the "SET" key to write the data to EEPROM.
8. Change the command "09" by pushing "CMD", "0" and "9" keys.
9. Set the address to "AB" by pushing the "ADR" key, "A" key and "B" key.
10. Push the "SET" key to read out the data from proper address of CPU-RAM. And then change command to "12" by pushing the "CMD" key and "1" key and "2" key and change the address to "21" by pushing "ADR" key, "2" key and "1" key. (Do not change the data)
11. Push the "SET" key to write the data to EEPROM.

Fig. C22

## 17. COLOUR PHASE AND GAIN ADJUSTMENT (OUTDOOR)

| CMD | ADDRESS | | CHART | M. EQ. |
|---|---|---|---|---|
| | RAM | EEPROM | | |
| 08 | 95 (R-Y G)<br>97 (R-Y P)<br>94 (B-Y G)<br>96 (B-Y P) | — | COLOUR BAR CHART | VIDEO OUT |
| 02 | — | 01 (R-Y G)<br>11 (R-Y P) | | |
| 12 | — | 01 (B-Y G)<br>11 (B-YP) | | |
| SPEC. | | | TP | |
| VECTORSCOPE | | | RED: 103+−3 degree/ PHASE, 169% +−10%/ GAIN (Red/BURST)<br>YEL: 163+−3 degree/ PHASE, 112%+−10%/ GAIN (Yellow/BURST) | |

1. Connect the Video Out to the Vectorscope.
2. Aim the camera at colour chip chart and cover the lens with colour temperature conversion filter VFK0713 and VFK0716.

< R-Y GC >
(Step 3 to 6 are R-Y gain Adjustment)

3. Set the command to "08" by pushing the "CMD" key, "0" key and "8" key.
4. Set the address to "95" (R-Y GAIN) by pushing the "ADR" key, "9" key and "5" key.
5. Push the "INC" key or "DEC" key so that phase of Red and Yellow vectors approaches spec.
6. When best point is found, change the command to "02" by pushing "CMD" key, "0" key and "2" key and change the address to "01" by pushing the "ADR" key, "0" key and "1" key (Do not change the data) and then push the "SET" key to write the adjusted data to EEPROM.

< R-Y PHASE >
(Step 7 to 9 are R-Y Phase Adjustment)

7. Change the command to "08" by pushing the "CMD" key, "0" key and "8" key.
   Change the address to "97" by pushing the "ADR" key, "9" key and "7" key.
8. Push the "INC" key or "DEC" key so that phase of Red and Yellow vectors approaches spec.
9. When best point is found change the command to "02" by pushing the "CMD" key, "0" key and "2" key. (Do not change the data), and change the address to "11" by pushing "ADR" key, "1" key twice.
   Next push the "SET" key to write the adjusted data to EEPROM.

< B-Y GC >
(Step 10 to 12 are B-Y gain Adjustment)

10. Change the command to "08" by pushing the "CMD" key "0" key and "8" key. Change the address to "94" (B-Y Gain) by pushing "ADR" key, "9" key and "4" key.
11. Push the "INC" or "DEC" key so that gain of Red and Yellow vectors approaches spec.
12. When best point is found change the command to "12" and change the address to "01" while keeping the data.
    Next push the "SET" key to write the adjusted data to EEPROM.

< B−Y PHASE >
(Step 13 to 15 are B−Y Phase Adjustment)

13. Change the command to "08".
    Change the address to "96"(B−Y Gain).
14. Push the "INC" or "DEC" key so that gain of Red and Yellow vectors approaches spec.
15. When the best point is found, change the command to "12" and change the address to "11" (Do not change the data). Next push the "SET" key to write the adjusted data to EEPROM.

16. Repeat steps 3 to 15 until vectors are within spec as shown in Fig.C23

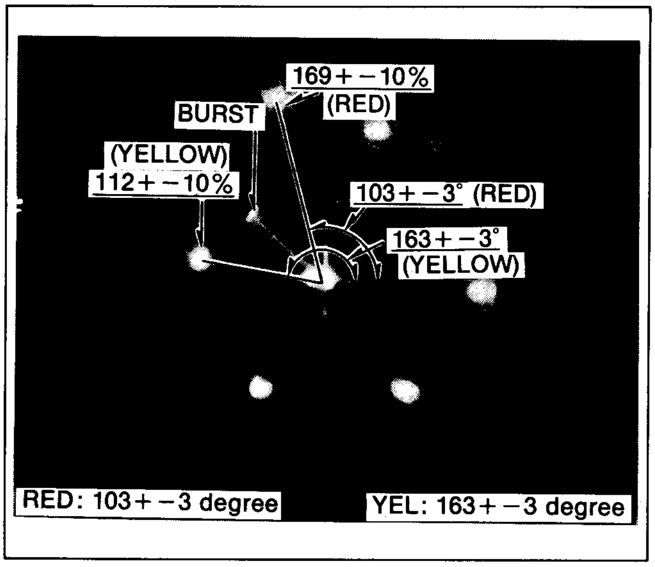


Fig. C23

## 18. DATA WRITING FOR COLOUR REPRODUCTION AND WHITE BALANCE

Purpose:
Each adjustment voltage is recorded in EEPROM as digital data. For colour reproduction adjustments such as white balance, phase and gain adjustments, the adjustments have only been performed for indoor lighting (3200 degree kelvin) and outdoor lighting (5600 degree kelvin). The EEPROM requires the data for other lighting conditions such as 3600 degree kelvin, 4500 degree kelvin and 6000 degree kelvin. In order to supply the rest of the data the following calculation has to be done and the results entered in the proper address of EEPROM.

Misentering:
White balance and color reproduction in lighting conditions between indoor and outdoor are poor.

Note 1:
VFK0701ROM5 (New ROM) for EVR must be installed in EVR fixture.
Mode selector should be "A" side.

1. Push "SHIFT 2 + 3" key simultaniously.
   (All formulas in Fig.C24, are performed and results stored in EEPROM automatically)

Note 2:
How to calculate and enter the data manually.
You can do calculation and entering the data to EEPROM manually as follows;

(For example)

ITEM: R−Y GC 36

FORMULA:ADR05+0.882(ADR01−ADR05)

EEPROM ADDRESS:03

1) Read out the data
   ADR05:Set the command to "04".
   Set the address to "05".
   Push the "SET" button.
   The number which is indicated in "DATA" LED is a data of ADR05(Address "05") for example, if indicated data is "56", substitute "56" to ADR05. (This is hexadecimal number)
   The same as above, read out the data from address "01".
   For example if data which is read out is ADR01="6C", ADR05="56" above formula becomes:
   R−Y GC 36 = 56+−1.00x(6C−56).
2) Convert the hexadecimal data into decimal number using conversion table. (Shown in Fig.C18) For example, "56" in hexadecimal is "86" in decimal from intersection of 5 and 6.
   Substitute it into the formula.
   Therefore,
   R−Y GC 36 = 86+0.882x(108−86)
   = 86+0.882x(22)
   = 105
3) Convert the result "105" to hexadecimal using conversion table (Fig.C18).
   "105" decimal is "69" in hexadecimal.
   Write the "69" into EEPROM address "03".
   * Set the command to "02".
   * Set the address to "03".
   * Set the data "69".
   * Push the "SET" key.

## Caluculation for Colour Reproduction

| NBR | ITEM | EEPROM ADDRESS | CMD | RESULT OF CALCULATION | FORMULA |
|---|---|---|---|---|---|
| (1) | R-Y GC 36 | 03<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"05" + 0.882 x (ADR"01" - ADR"05") |
| (2) | R-Y GC 45 | 02<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"05" + 0.471 x (ADR"01" - ADR"05") |
| (3) | R-Y GC 28 | 06<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"05" + **0.412** x (ADR"01" - ADR"05") |
| (4) | R-Y GC 60 | 00<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"05" + 1.941 x (ADR"01" - ADR"05") |
| (5) | R-Y GC 33 | 04<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"05" + 0.000 x (ADR"01" - ADR"05") |
| (6) | R-Y MAT 28 | 16<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"15" + 0.000 x (ADR"11" - ADR"15") |
| (7) | R-Y MAT 36 | 13<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"15" - 0.091 x (ADR"11" - ADR"15") |
| (8) | R-Y MAT 45 | 12<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"15" - 0.750 x (ADR"11" - ADR"15") |
| (9) | R-Y MAT 60 | 10<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"15" + 0.250 x (ADR"11" - ADR"15") |
| (10) | R-Y MAT 33 | 14<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"15" |
| (11) | B-Y GC 28 | 06<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"05" + 0.333 x (ADR"01" - ADR"05") |
| (12) | B-Y GC 36 | 03<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"05" + 0.667 x (ADR"01" - ADR"05") |
| (13) | B-Y GC 45 | 02<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"05" + 0.939 x (ADR"01" - ADR"05") |
| (14) | B-Y GC 60 | 00<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"05" + 0.848 x (ADR"01" - ADR"05") |
| (15) | B-Y GC 33 | 04<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"05" - 0.000 x (ADR"01" - ADR"05") |
| (16) | B-Y MAT 28 | 16<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"15" + 0.000 x (ADR"11" - ADR"15") |
| (17) | B-Y MAT 36 | 13<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"15" - 1.750 x (ADR"11" - ADR"15") |
| (18) | B-Y MAT 45 | 12<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"15" - 1.125 x (ADR"11" - ADR"15") |
| (19) | B-Y MAT 60 | 10<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"15" + 0.250 x (ADR"11" - ADR"15") |
| (20) | B-Y MAT 33 | 14<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"15" |
| (21) | R-Y WB 28 | 26<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"25" + 1.073 x (ADR"25" - ADR"21") |
| (22) | R-Y WB 33 | 24<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"25" - 0.293 x (ADR"25" - ADR"21"). |
| (23) | R-Y WB 36 | 23<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"25" - 0.585 x (ADR"25" - ADR"21") |
| (24) | R-Y WB 45 | 22<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"25" - 1.073 x (ADR"25" - ADR"21") |
| (25) | R-Y WB 49 | 29<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"21" |
| (26) | R-Y-WB 60 | 20<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"25" - 1.220 x (ADR"25" - ADR"21") |
| (27) | R-Y WB LLIM | 27<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | **ADR “20” (L)** |
| (28) | B-Y WB 28 | 26<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"25" + 0.297 x (ADR"25" - ADR"21") |
| (29) | B-Y WB 33 | 24<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"25" - 0.063 x (ADR"25" - ADR"21") |
| (30) | B-Y WB 36 | 23<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"25" - 0.125 x (ADR"25" - ADR"21") |
| (31) | B-Y WB 45 | 22<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"25" - 0.453 x (ADR"25" - ADR"21") |
| (32) | B-Y WB 49 | 29<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"21" |
| (33) | B-Y WB 60 | 20<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"25" - 1.141 x (ADR"25" - ADR"21") |
| (34) | B-Y WB LLIM | 27<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | **ADR “20” (H)** |

Fig. C24-1

## Caluculation for Auto Whitc Balancc

| NBR | ITEM | EEPROM ADDRESS | CMD | RESULT OF CALCULATION | FORMULA |
|---|---|---|---|---|---|
| (1) | BH 28 | 46<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"25" + 0.984 x (ADR"25" - ADR"21") |
| (2) | BH 30 | 45<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"25 + 0.984 x (ADR"25" - ADR"21") |
| (3) | BH 36 | 43<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"25 + 0.250 x (ADR"25" - ADR"21") |
| (4) | BH 45 | 42<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"25 - 0.188 x (ADR"25" - ADR"21") |
| (5) | BH 51 | 41<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"25 - 0.781 x (ADR"25" - ADR"21") |
| (6) | BH 60 | 40<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"25 - 1.891 x (ADR"25" - ADR"21") |
| (7) | BH TR | 48<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"25 + 0.250 x (ADR"25" - ADR"21") |
| (8) | BH SKY | 47<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"25 - 1.953 x (ADR"25" - ADR"21") |
| (9) | BL 28 | 36<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"25" - 0.422 x (ADR"25" - ADR"21") |
| (10) | BL 30 | 35<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"25" - 0.422 x (ADR"25" - ADR"21") |
| (11) | BL 36 | 33<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"25" - 0.656 x (ADR"25" - ADR"21") |
| (12) | BL 45 | 32<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"25" - 0.781 x (ADR"25" - ADR"21") |
| (13) | BL 51 | 31<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"25" - 1.891 x (ADR"25" - ADR"21") |
| (14) | BL 60 | 30<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"25" - 1.953 x (ADR"25" - ADR"21") |
| (15) | BL TR | 38<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"25" - 0.781 x (ADR"25" - ADR"21") |
| (16) | BL SK | 37<br>(HIGH DIGIT) | READ : 14<br>WRITE: 12 | | ADR"00" |
| (17) | RH 28 | 46<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"25" + 2.341 x (ADR"25" - ADR"21") |
| (18) | RH 30 | 45<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"25" + 0.659 x (ADR"25" - ADR"21") |
| (19) | RH 36 | 43<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"25" - 0.114 x (ADR"25" - ADR"21") |
| (20) | RH 45 | 42<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"25" - 0.902 x (ADR"25" - ADR"21") |
| (21) | RH 51 | 41<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"25" - 0.341 x (ADR"25" - ADR"21") |
| (22) | RH 60 | 40<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"25" - 0.927 x (ADR"25" - ADR"21"). |
| (23) | RH TR | 48<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"25" - 1.437 x (ADR"25" - ADR"21"). |
| (24) | RH SK | 47<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"25" - 0.927 x (ADR"25" - ADR"21") |
| (25) | Rxisth | 4A<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR “42” (L) |
| (26) | RL 28 | 36<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"25" + 0.659 x (ADR"25" - ADR"21"). |
| (27) | RL 30 | 35<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"25" - 0.114 x (ADR"25" - ADR"21"). |
| (28) | RL 36 | 33<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"25" - 0.902 x (ADR"25" - ADR"21"). |
| (29) | RL 45 | 32<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"25" - 1.439 x (ADR"25" - ADR"21"). |
| (30) | RL 51 | 31<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"25" - 1.854 x (ADR"25" - ADR"21"). |
| (31) | RL 60 | 30<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"25" - 1.927 x (ADR"25" - ADR"21"). |
| (32) | RL TR | 38<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"25" - 2.000 x (ADR"25" - ADR"21"). |
| (33) | RL SK | 37<br>(LOW DIGIT) | READ : 04<br>WRITE: 02 | | ADR"25" - 2.000 x (ADR"25" - ADR"21"). |

Fig. C24-2

## 19. ADDITIONAL FOR HOW TO USE E.V.R.

### E.V.R. FIXTURE

Camera Process section uses a memory IC called a E.E.P.R.O.M.(Electrical Erasable Programmable Read Only Memory) that replaces the variable resistor in conventional camera process. In the conventional camera process, each adjustment point was adjusted by turning variable resistors as shown in Fig.C25. In the NV–S700 adjustment voltage is recorded in the EEPROM as 8 bit digital data. The EEPROM supplies the recorded adjustment voltage to the adjustment point as shown in Fig.C26.

The data in the EEPROM can be easly changed electrically. The E.V.R. (Electric Variable Resistor) has been designed to change the 8 bit data of EEPROM in process circuit. The E.V.R. can also communicate directly with the RAM of the micro processor to change each control voltage. In normal operation the EEPROM would send the voltage data to RAM where the digital data is used to changed the adjustment values in the various cicuits. Using the E.V.R. you can change the data stored in the EEPROM easily thereby adjusting the camera process section. And the E.V.R. can also send the data to the RAM directly to confirm the adjustment.

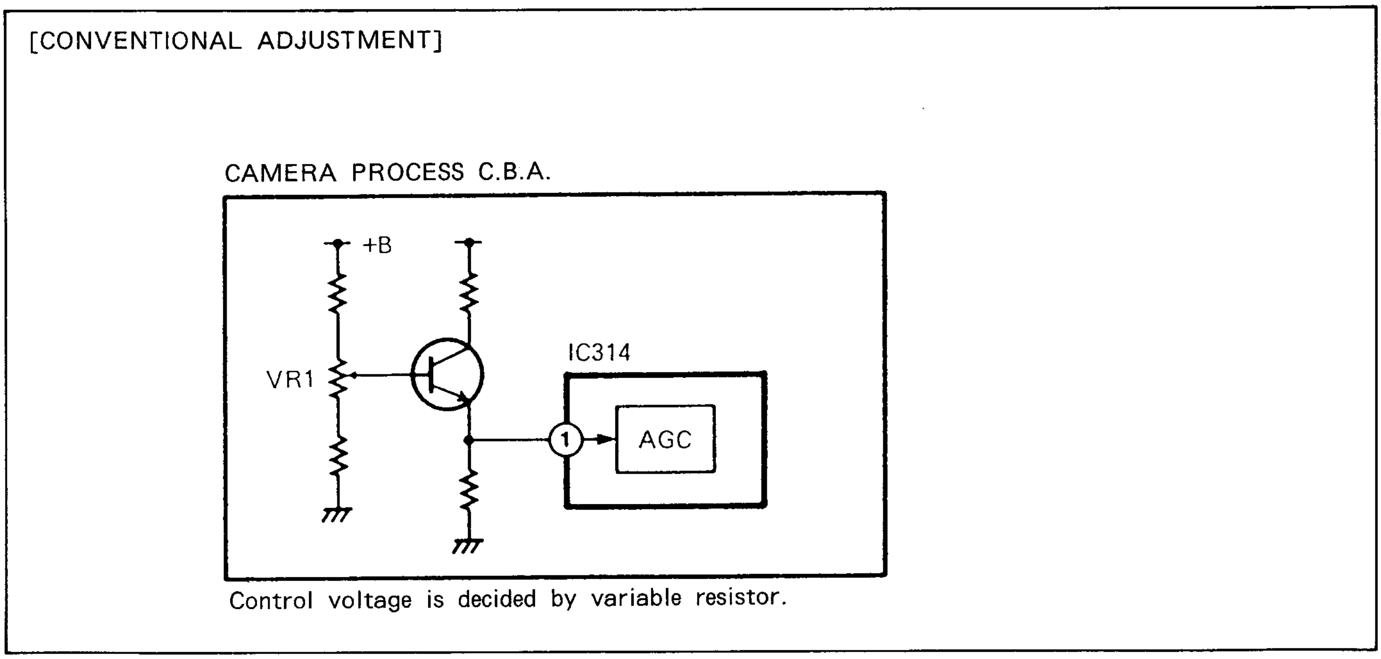

[CONVENTIONAL ADJUSTMENT]
CAMERA PROCESS C.B.A.
+B
VR1
IC314
1
AGC
Control voltage is decided by variable resistor.

Fig. C25

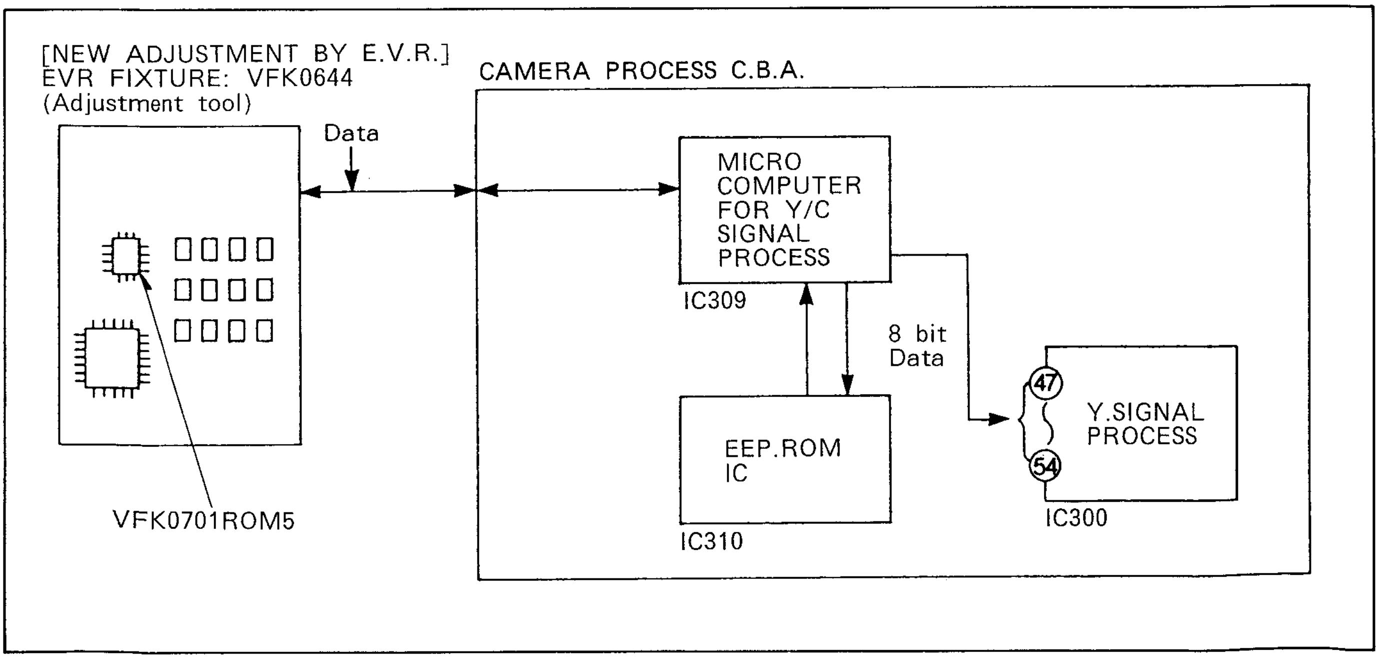
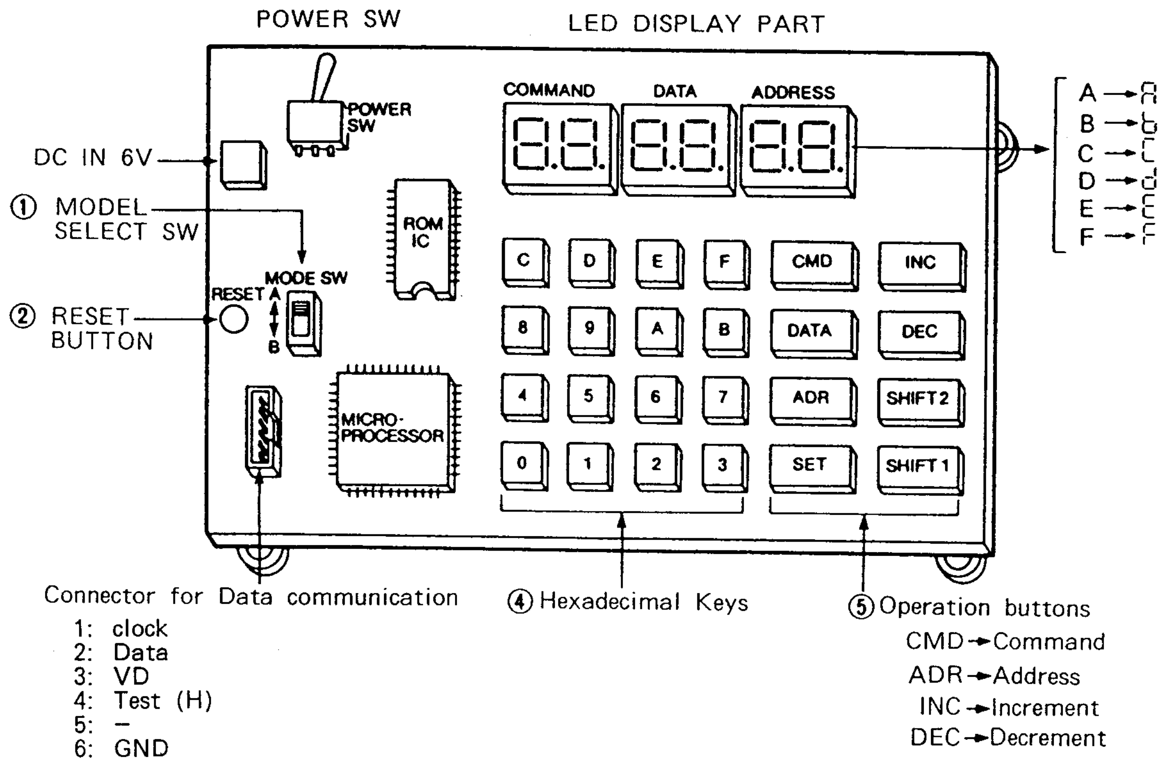

[NEW ADJUSTMENT BY E.V.R.]
EVR FIXTURE: VFK0644
(Adjustment tool)
Data
VFK0701ROM5
CAMERA PROCESS C.B.A.
MICRO COMPUTER FOR Y/C SIGNAL PROCESS
IC309
8 bit Data
EEP.ROM IC
IC310
47
54
Y.SIGNAL PROCESS
IC300

Fig. C26

Name of key


POWER SW
LED DISPLAY PART
POWER SW
COMMAND
DATA
ADDRESS
DC IN 6V
① MODEL SELECT SW
ROM IC
MODE SW
RESET
A
B
② RESET BUTTON
MICRO-PROCESSOR
C
D
E
F
CMD
INC
8
9
A
B
DATA
DEC
4
5
6
7
ADR
SHIFT2
0
1
2
3
SET
SHIFT1
A →
B →
C →
D →
E →
F →
Connector for Data communication
1: clock
2: Data
3: VD
4: Test (H)
5: –
6: GND
④ Hexadecimal Keys
⑤ Operation buttons
CMD → Command
ADR → Address
INC → Increment
DEC → Decrement

| NO. | NAME | DESCRIPTION |
|---|---|---|
| ① | **MODE SW** | MODEL selection switch. In case of NV−S7/S700, turn it to A side |
| ② | **RESET BUTTON** | After Power is on, if operation is not stable, push this SW. |
| ③ | **ROM IC** | ROM IC of which Programing (to operate E.V.R) is memorized in. In the future, to cope with new camcorder servicing, this ROM IC could be replaced to new version. |
| ④ | **HEXADECIMAL KEYS** | Key buttons of 16 pieces (from "O" to "F").<br>These are used when "COMMAND", "DATA" or "ADDRESS" is set. |
| ⑤ | **OPERATION BUTTONS** | The buttons to operate writing, reading or setting the data. |
| | **CMD: Command button** | This is used to decide the which mode (command) between E.V.R and camcorder (for example, data writing or reading) to perform. |
| | **DATA: Data button** | For changing Data. |
| | **ADR: Address button** | To appoint the EEPROM address or RAM address. |
| | **SET: Set button** | To perform the appointed command (for example reading or writing). |
| | **INC: Incliment**<br>**DEC: Decliment** | Increase or decrease the data one by one (+1, −1) |
| | **SHIFT 1 button** | To carry out macro operation (while pushing with hexadecimal keys) SHIFT 1 button is used. (Macro operations will be described later) |
| | **SHIFT 2 button** | To carry out macro operation(while pushing with hexadecimal keys) SHIFT 2 button is used (Macro operations will be described later.) |

Fig. C27

(Before Adjusting How to use the E.V.R. Fixture)

1) How to read out the data which is being stored in EEPROM.
Connect the E.V.R. Fixture as shown in Fig.C3.

Result:
Adjustment value of AGC has been set for "6A". It is advisable to read out the data like this and make a note of it before writing the new data so that if a error should occure you can rewrite original data.

| **Item** | | **Proceduring Order** | **Buttons to be Pushed** | **LED Indication** |
|---|---|---|---|---|
| For Example, Reading out the data of AGC Adjustment comunication from camcorder to E.V.R.<br>EEPROM→ E.V.R. | 1 | Set the Command mode to "14", "14" is read out command. (Refer to command description) | [CMD] [1] [4] | **LED lights up**<br>14/80 00<br>Command setting |
| | 2 | **Set the Address of EEPROM** | [ADR] [6] [A] | 14 80 6A.<br>Address setting of EEPROM<br>LED lights up |
| | 3 | **Read out the data** | [SET]<br>**Push this for 2 seconds** | 14 09.6A<br>data for AGC for example<br>LED lights up |

Fig. C28

2) Writing the New Data

(1) Search and Write Procedure
(For example:AGC Adjustment).

Confirmation:
Confirm whether data is written correctly or not.

Procedure:
1. Set the Command to "04".
2. Set the Address to "41".
3. Push the "SET" button.
4. The number which is indicated on DATA LED is a data which has been written.

| **Item** | | **Proceduring Order** | **Buttons to be Pushed** | **LED Indication** |
|---|---|---|---|---|
| For Example, writing the AGC adjustment data.<br>E.V.R. → EEPROM | 1 | Set the command to "18". | [CMD] [1] [8] | **Command for search mode.** |
| | 2 | Set the Address of RAM to "BC"<br>E.V.R.→ RAM<br>(communication from E.V.R. to RAM) | [ADR] [B] [C] | LED lights up.<br>18/80 6C |
| | 3 | Adjustment<br>Push "DEC" or "INC" button so that AGC at B302–20 becomes 240 | **Search with**<br>[INC] or [DEC] | 18 9 16C.<br>LED lights up |
| | 4 | Change the command to "12" | [CMD] [1] [2] | LED lights up<br>12/9 16C<br>Command for Direct Writing |

Fig. C29

| Item | | Proceduring Order | Buttons to be Pushed | LED Indication |
|---|---|---|---|---|
| | 5 | Set the address of EEPROM to "6A" | [ADR] [4] [F] | address of EEPROM<br>02 91 6A<br>LED lights up |
| | 6 | Do not change the data after adjustment | [DATA] [9] [1] | 02 91 6A<br>LED lights up |
| | 7 | Write the data | [SET]<br>Push this for 2sec. | LED disappear<br>02 91 6A |

Fig. C30

3) Direct Writing Procedure

| Item | | Proceduring Order | Buttons to be Pushed | LED Indication |
|---|---|---|---|---|
| For Example, writing the AGC adjustment data | 1<br>2<br>3 | **Searching the best Point.<br>same as (1)** | **same as (2)** | **same as (2)** |
| | 4 | Change the command to "01" | [CMD] [1] [2] | LED lights up<br>12 00 21<br>Command for Direct writing |
| | 5 | Set the address of EEPROM to "6A" | [ADR] [6] [A] | address of EEPROM<br>12 00 6A<br>LED lights up |
| | 6 | Set the data of best point "91" | [DATA] [9] [1] | 12 91 6A<br>LED lights up |
| | 7 | **Write the data** | [SET]<br>**Push this for 2sec.** | LED disappear.<br>12 91 6A |

Fig. C31

(Adjustment Items required after replacing the individual components.)

When following parts are replaced, check the following adjustment items and adjust if necessary.

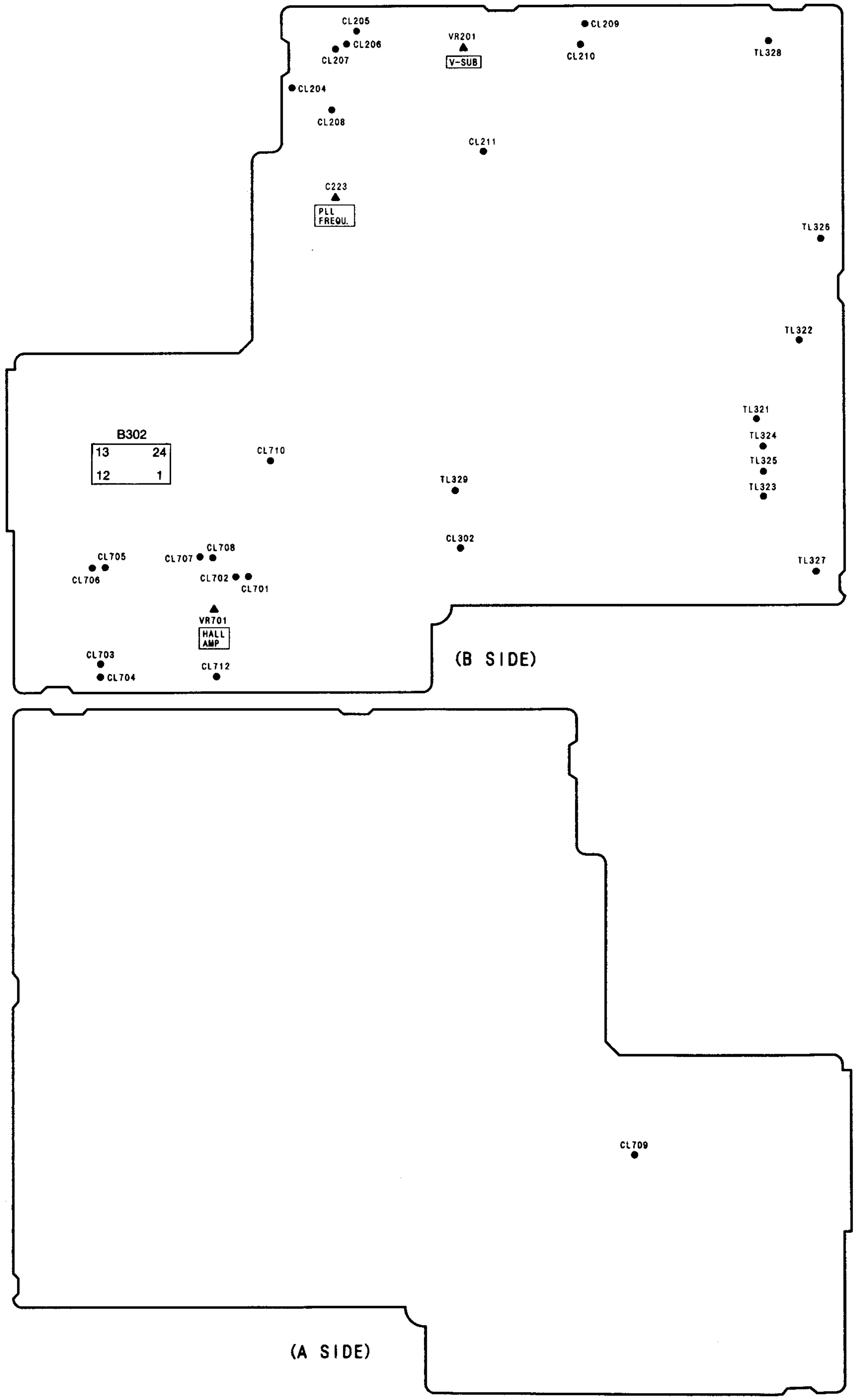
| NO. | Replaced Parts | Adjustment point or check points which are required | | | |
|---|---|---|---|---|---|
| | | ALL ADJ. Points | Colour Reproduction | Focus & Zoom Encoder | Other ADJ. |
| 1 | IC310(EEPROM) | ○ | | | |
| 2 | CCD Unit Individual | | ○ | ○ | |
| 3 | Process C.B.A | ○ | | | |
| 4 | Sensor AF C.B.A | △ | ○ | ○ | |
| 5 | Lens Unit | | | ○ | Hole Amp |
| 6 | Focus Encoder C.B.A | | | ○ | |
| 7 | IC204 | | | | CDS Gain |
| 8 | IC702 | | | | Hole Amp |
| 9 | other | | | | |

○ mark ................................Adjustment may be required.
△ mark ................................Confirm adjustment necessity and adjust it, if necessary.
Colour Reproduction ..........WB, Colour gain, colour phase adjustments.

Fig. C32

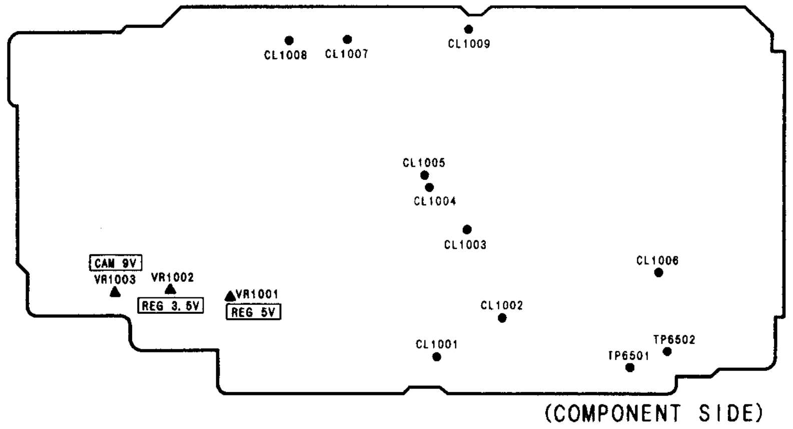
## LOCATION OF TEST POINTS AND CONTROLS (1)

CAMERA C. B. A.

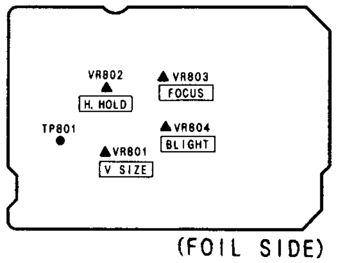

CL205
CL206
CL207
CL204
CL208
VR201
V-SUB
CL209
CL210
TL328
CL211
C223
PLL FREQU.
TL326
TL322
TL321
TL324
TL325
TL323
B302
13
24
12
1
CL710
TL329
CL302
TL327
CL705
CL706
CL707
CL708
CL702
CL701
VR701
HALL AMP
CL703
CL704
CL712
(B SIDE)
CL709
(A SIDE)

# LOCATION OF TEST POINTS AND CONTROLS (2)

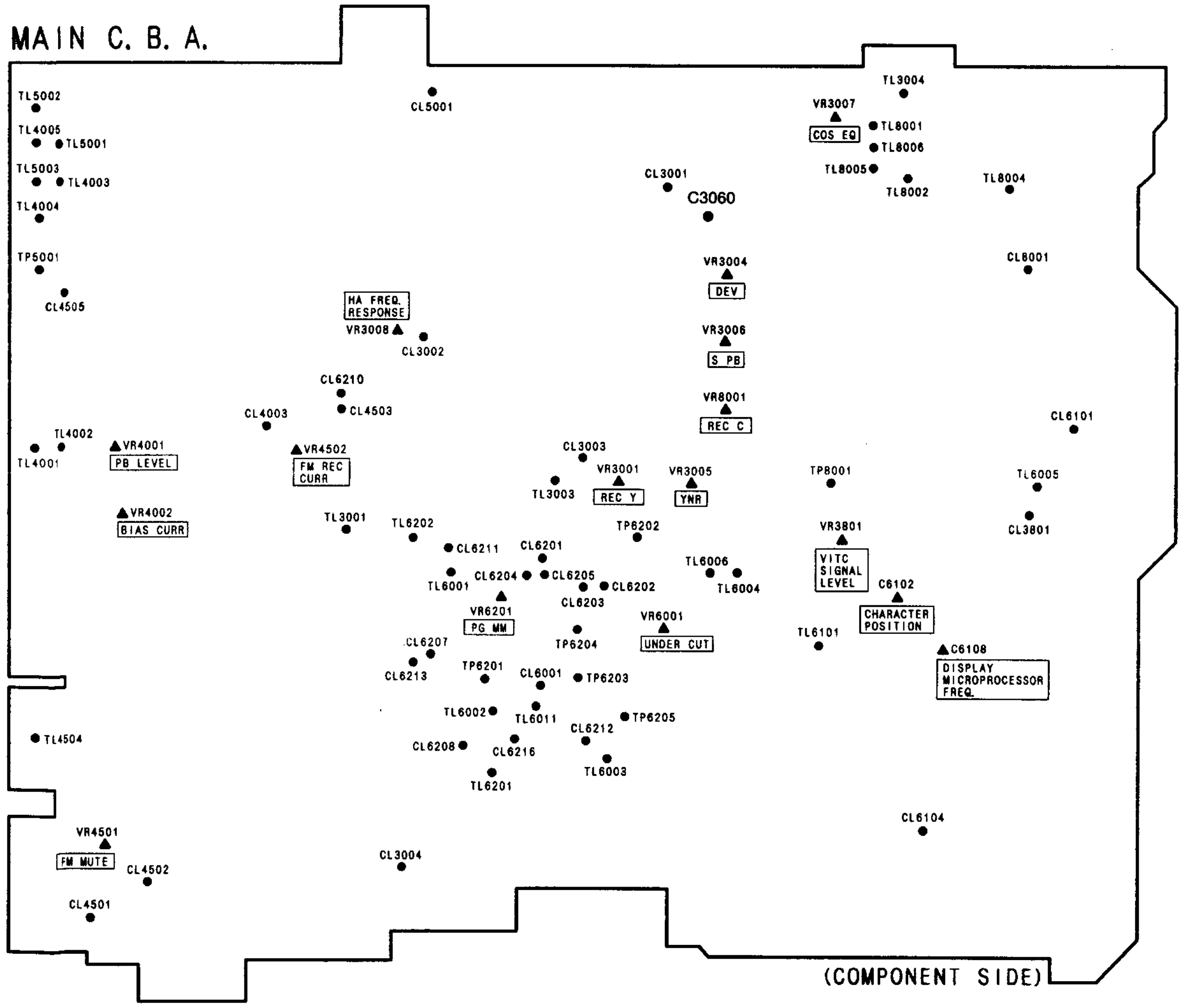
POWER C. B. A.


CL1008
CL1007
CL1009
CL1005
CL1004
CL1003
CL1006
CAM 9V
VR1003
VR1002
REG 3.5V
VR1001
REG 5V
CL1002
CL1001
TP6502
TP6501
(COMPONENT SIDE)

EVF C. B. A.


VR802
H. HOLD
VR803
FOCUS
TP801
VR804
BLIGHT
VR801
V SIZE
(FOIL SIDE)

MAIN C. B. A.


TL5002
TL4005
TL5001
TL5003
TL4003
TL4004
TP5001
CL4505
CL5001
HA FREQ. RESPONSE
VR3008
CL3002
CL6210
CL4503
CL4003
TL4002
TL4001
VR4001
PB LEVEL
VR4002
BIAS CURR
VR4502
FM REC CURR
TL3001
TL6202
CL6211
CL6201
TL6001
CL6204
CL6205
CL6202
CL6203
VR6201
PG MM
CL6207
CL6213
TP6201
CL6001
TP6203
TP6204
TL6002
TL6011
CL6212
TP6205
CL6208
CL6216
TL6201
TL6003
TL4504
VR4501
FM MUTE
CL4502
CL4501
CL3004
CL3003
TL3003
VR3001
REC Y
VR3005
YNR
TP6202
TL6006
TL6004
VR6001
UNDER CUT
CL3001
C3060
VR3004
DEV
VR3006
S PB
VR8001
REC C
TL3004
VR3007
COS EQ
TL8001
TL8006
TL8005
TL8002
TL8004
CL8001
CL6101
TP8001
TL6005
CL3801
VR3801
VITC SIGNAL LEVEL
C6102
CHARACTER POSITION
TL6101
C6108
DISPLAY MICROPROCESSOR FREQ.
CL6104
(COMPONENT SIDE)

## 2-5-2. ELECTRICAL ADJUSTMENT FOR E.V.F. SECTION

The following adjustment are for Electric Viewfinder.

(1) Connect the Viewfinder plug to the E.V.F. connector on the unit.
(2) The camera circuit must be completely sligned before viewfinder adjustments are made.

### 1. CENTERING ADJUSTMENT

(1) Aim the camera at the registation chart.
(2) Adjust the deflection Yole centering magnets turning them so that the picture on monitor TV is centered.

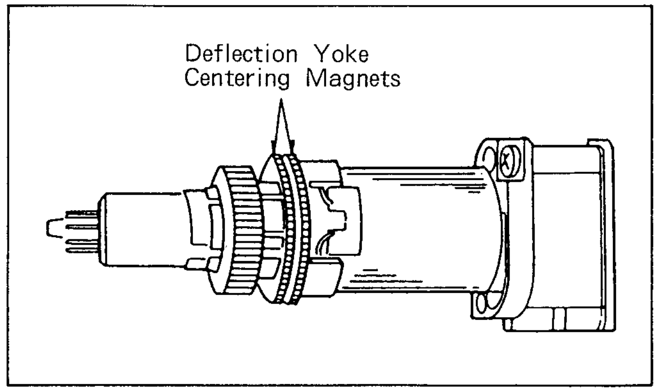

Deflection Yoke
Centering Magnets

Fig. E1

### 2. FOCUS ADJUSTMENT

| TP | ADJ. | LENS CAP | CHART |
|---|---|---|---|
| | VR803 | NO | BALL CHART |
| **M. EQ.** | | **SPEC.** | |
| VIEWFINDER | | BEST RESOLUTION | |

NOTE VR803: E.V.F. C.B.A.
1) Aim the connect at Ball chart.
2) Adjust the VR803 for best resolution in viewfinder.

### 3. FOCUS ADJSUTMENT

| TP | ADJ. | LENS CAP | CHART |
|---|---|---|---|
| TP801 | VR802 | NO | |
| **M. EQ.** | | **SPEC.** | |
| COUNTER | | 15.90+−0.1KHz | |

### 4. V.SIZE ADJUSTMENT

| TP | ADJ. | LENS CAP | CHART |
|---|---|---|---|
| | VR801 | NO | GRAY SCALE CHART |
| **M. EQ.** | | **SPEC.** | |
| VIEWFINDER | | VERTICAL SIZE IS FIXED | |

NOTE:
VR801 : E.V.F. C.B.A.

(1) Aim the camera at the gray scale chart.
(2) Adjust th vertical size(VR801) so that the Vertical size is correct and the picture does not roll as shown in Fig.E2.

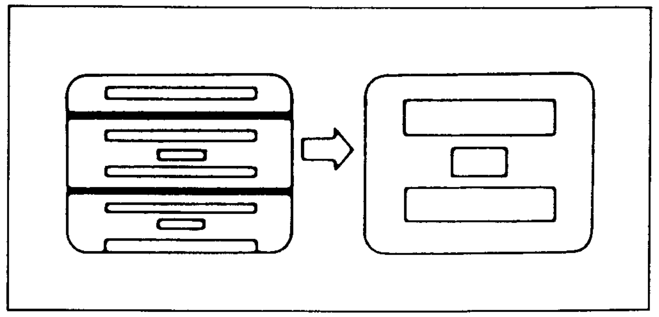


Fig. E2

### 5. BRIGHTNESS ADJUSTMENT

| TP | ADJ. | LENS CAP | CHART |
|---|---|---|---|
| | VR821 | NO | GRAY SCALE CHART |
| **M. EQ.** | | **SPEC.** | |
| VIEWFINDER | | NATURAL GRADATION | |

NOTE:
VR804 : E.V.F. C.B.A.

(1) Aim the camera at gray scale chart.
(2) Adjust the brightness control(VR821) so that the black and white bars in the E.V.F. screen are the same as they are in the monitor TV screen.

## 2-5-3. ELECTRICAL ADJUSTMENT FOR VTR SECTION

TEST EQUIPMENT AND TOOLS

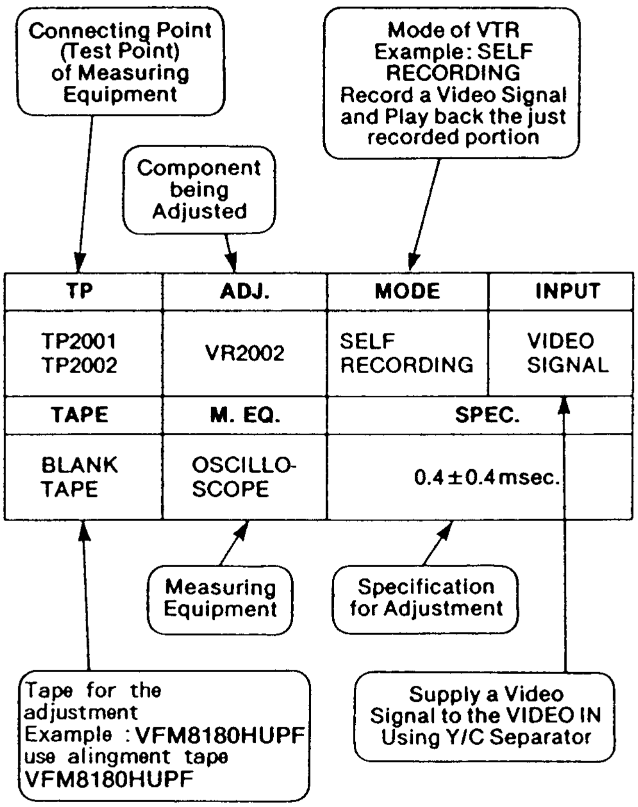
The following equipment is required for adjustment of the VTR section of S-VHS-C-Movie.

1. VTVM (Vacuum Tube Volt Meter)
   DVM (Digital Volt Meter)
   Voltage Range: 0.01~50V
2. Dual Trace Oscilloscope
   Voltage Range: 0.06~50V/div
   Frequency Range: 0~50MHz
   Probe: 10:1 or 1:1
3. Frequency counter
   Frequency Range: 0~10MHz
4. Signal Generator (Sinewave)
   Frequency Range: 0~10MHz
5. Video Sweep Generator
   Frequency Range: 0~10MHz
6. Colour Monitor TV
7. Plastic Tip Driver
8. VHS-C-Movie.-C Alignment Tape (VFMS0002H6C)
9. S-VHS-C-Movie.-C Blank Tape
10. VHS-C-Movie.-C Blank Tape
11. Pattern Generator
12. Vectorscope
13. DC Power Supply

PREPARATION

1. Remove the casing panels
   (Refer to the disassembly method)
2. Connect the extension cable if necessary.
   VFK0725
   VFK0726
   VFK0752
   VFK0668
   VFK0751

### HOW TO READ THE ADJUSTMENT PROCEDURES


Connecting Point (Test Point) of Measuring Equipment
Mode of VTR Example: SELF RECORDING Record a Video Signal and Play back the just recorded portion
Component being Adjusted
Measuring Equipment
Specification for Adjustment
Tape for the adjustment Example : VFM8180HUPF use alingment tape VFM8180HUPF
Supply a Video Signal to the VIDEO IN Using Y/C Separator

| TP | ADJ. | MODE | INPUT |
|---|---|---|---|
| TP2001<br>TP2002 | VR2002 | SELF RECORDING | VIDEO SIGNAL |
| **TAPE** | **M. EQ.** | **SPEC.** | |
| BLANK TAPE | OSCILLO-SCOPE | 0.4±0.4msec. | |

**Note:** If ☒ appears in any block, this means it is not used or not important.

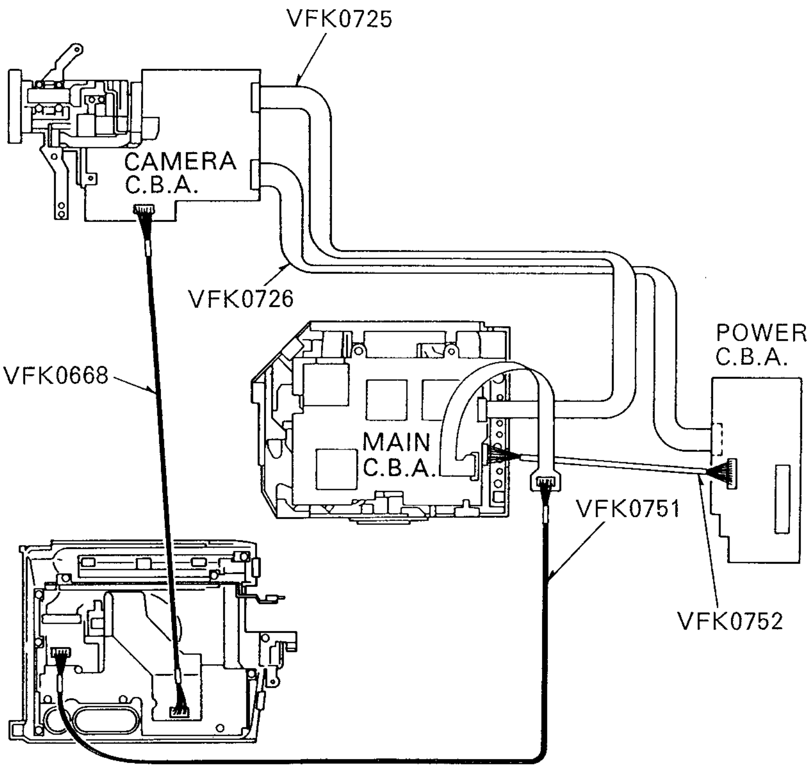

VFK0725
CAMERA C.B.A.
VFK0726
VFK0668
POWER C.B.A.
MAIN C.B.A.
VFK0751
VFK0752

Fig. V1

TRIGGERING THE OSCILLOSCOPE

To trigger the Oscilloscope, the following test point is used.

H. rate : TP (video output)
V. rate : TP6201 (Head Switching signal)

Note:
Begin with the Unit set up as follows except for special instructions in each adjustment item.

1. Tape Speed Selector.....SP position.
2. Digital Tracking SW.....ON position.
3. S–VHS–C–Movie. System Selector.....Auto
4. EDIT SW.....OFF position.

## POWER SECTION

### 1. REG. 5V ADJUSTMENT

Purpose:
To properly calibrate the 5V voltage to 4.72 DC +– 0.025V.

Symptom of Misadjustment:
All circuits in the unit will not operate properly.

| TP | ADJ. | MODE | INPUT |
|---|---|---|---|
| CP1001 (HOT)<br>CP1006 (GND) | VR1001 | S-VHS (SP) CAMERA RECORDING (DIS ON) | |
| **TAPE** | **M. EQ.** | **SPEC.** | |
| S-VHS BLANK TAPE | D.V.M. | 4.72+ –0.025V | |

Note:
EVF, Camera Unit, and camera operation unit are connect to the VTR unit.
Turn the Power sw ON and then set the DIS system to the ON position.

(1) Connect the D.V.M. To CP1001(HOT) and CP1006(GND) Adjust the VR1001 so that D.V.M. is 4.72+–0.025V.

### 2. CAMERA 3.5V ADJUSTMENT

Purpose:
To properly calibrate the voltage to 3.5V DC+–0.025V.

Symptom of Misadjustment:
All circuits in N Unit will not operate properly.

| TP | ADJ. | MODE | INPUT |
|---|---|---|---|
| CP1002 (HOT)<br>CP1006 (GND) | VR1002 | S-VHS (SP) CAMERA RECORDING (DIS ON) | |
| **TAPE** | **M. EQ.** | **SPEC.** | |
| S-VHS BLANK TAPE | D.V.M. | 3.50+ –0.025V | |

Note:
EVF, Camera Unit and camera operation unit are connected to the VTR unit.
Turn the power sw on and then set DIS system to the ON position.

(1) Connect the D.V.M. to the CP1002(HOT) and CP1006(GND) Adjust the VR1002 so that D.V.M. is 3.50+–0.025V.

### 3. CAMERA 9V REGULATOR

| TP | ADJ. | MODE | INPUT |
|---|---|---|---|
| CP1003 (HOT)<br>CP1006 (GND) | VR1003 | S-VHS (SP) CAMERA RECORDING (DIS ON) | |
| **TAPE** | **M. EQ.** | **SPEC.** | |
| BLANK TAPE | D.V.M. | 8.65+0.07V<br>–0.03V | |

Note:
DIS system must be set to the ON position.

(1) Connect the D.V.M. To CP1003(HOT) and CP1006(GND) Adjust the VR1003 so that D.V.M. is 8.65+0.07V,–0.03V.

## SERVO SECTION

### 4. PG SHIFTER ADJUSTMENT

Purpose:
Determine the Head Switching point during play–back.

Symptom of Misadjustment:
May cause Head Switching Noise and/or Vertical jitter in the picture.

| TP | ADJ. | MODE | INPUT |
|---|---|---|---|
| TP6201<br>VIDEO OUT<br>TP3005 | VR6201 | PLAY | |
| **TAPE** | **M. EQ.** | **SPEC.** | |
| ALIGNMENT TAPE (VFM8180HUPF) | OSCILLO-SCOPE | 6.5H±0.5H | |

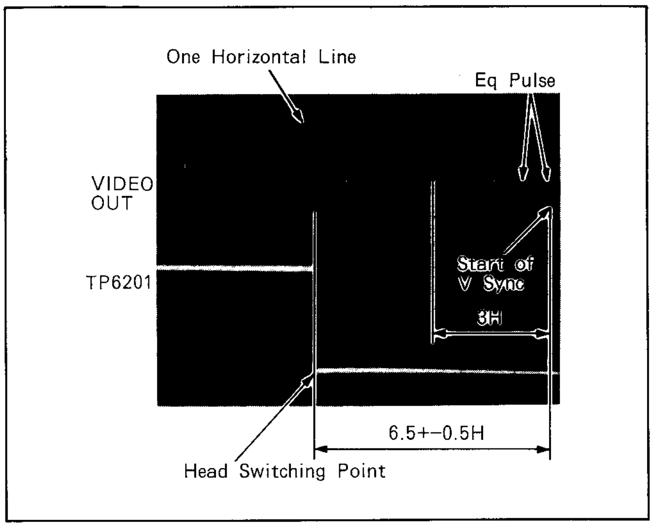


Fig. V2

## LUMINANCE & CHROMINANCE SECTION

### 5. S-VHS MODULATOR LEVEL ADJUSTMENT

| TP | ADJ. | MODE | INPUT |
|---|---|---|---|
| TL3003 | VR3004 | S-VHS STOP | COLOUR BAR |
| **TAPE** | **M. EQ.** | **SPEC.** | |
| | OSCILLO-SCOPE | 0.34+−0.01Vp−p | |

1. Connect the jumper wire between TEST MODE PIN8 and PIN11.
2. Supply colour Bar signal to TEST MODE PIN14.
3. Connect the oscilloscope to TL3003.
4. Adjust the VR3004 so that signal level is 0.34+−0.01Vp−p.

### 6. RECORDING CURRENT ADJUSTMENT REC CHROMA LEVEL ADJUSTMENT

Purpose:
Set the optimum Record Chroma Level.

Symptom of Misadjustment:
If the Record Chroma Level is too high, Beats may be seen in the picture. If the Level is too low

| TP | ADJ. | MODE | INPUT |
|---|---|---|---|
| TP5001 (HOT)<br>TP5002 (GND) | VR8001 | S-VHS REC/PLAY (SP) | COLOUR BAR |
| **TAPE** | **M. EQ.** | **SPEC.** | |
| S-VHS BLANK TAPE | OSCILLO-SCOPE | 14+−2mVp-p | |

1. Connect the oscilloscope to TP5001(HOT) and TP5002(GND).
2. Aim the camera at colour bar.
3. Make recording with SP mode.
4. Eliminate luminance signal by turning off
5. Adjust the VR8001 so that chroma level is 14+−2mVp−p.

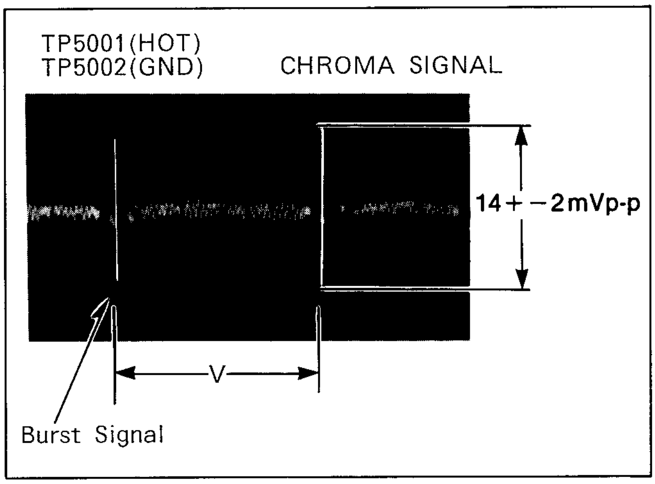


Fig. V3

### 7. LUMINANCE RECORDING CURRENT ADJUSTMENT

Purpose:
Set the optimum Recording Luminance Level.

Symptom of Misadjustment:
If the Record Luminance Level is too high, Video may overload.
If the Level is too Low, the S/N Ratio deteriorates.

| TP | ADJ. | MODE | INPUT |
|---|---|---|---|
| TP5001 (HOT)<br>TP5002 (GND) | VR3001 | S-VHS REC/PLAY (SP) | COLOUR BAR |
| **TAPE** | **M. EQ.** | **SPEC.** | |
| S-VHS BLANK TAPE | OSCILLO-SCOPE | 100+−5mVp-p | |

1. Connect the oscilloscope to TP5001(HOT) and TP5002(GND).
2. Aim the camera at colour bar.
3. Make recording with SP mode.
4. Adjust the VR3001 so that luminance level is 100+−5mVp−p.

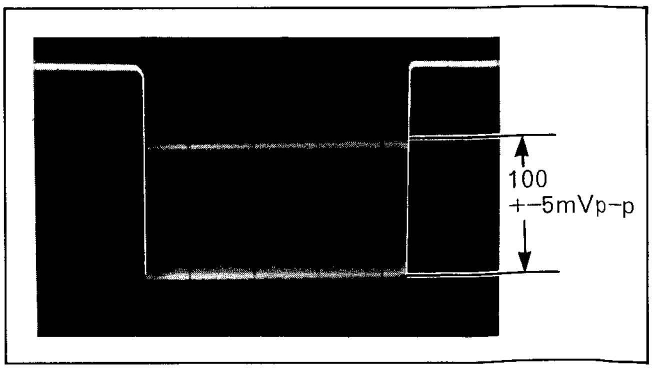


Fig. V4

## 8. YNR ADJUSTMENT

Purpose:
Improve the overall S/N Ratio especially in the Low Frequency component.

Symptom of Misadjustment:
The S/N Ratio is low.

| TP | ADJ. | LENS CAP | CHART |
|---|---|---|---|
| TP3003 | VR3005 | PLAY | COLOUR BAR |
| **TAPE** | **M. EQ.** | **SPEC.** | |
| ALIGMSNT TAPE VFM8180HUPF | OSCILLO-SCOPE | SIGNAL IS MINIMIZED (LESS THAN 100mV) | |

1. Play Back the Alignment tape.
2. Connect the Video output to oscilloscope.
3. Adjust VR3005 so that signal is minimized.

## 9. S-VHS VIDEO PLAYBACK LEVEL ADJUSTMENT

| TP | ADJ. | MODE | INPUT |
|---|---|---|---|
| VIDEO OUT | VR3006 | S−VHS SELF RECORDING | COLOUR BAR |
| **TAPE** | **M. EQ.** | **SPEC.** | |
| S−VHS BLACK TAPE | OSCILLO−SCOPE | A: 1.0+−0.1Vp−p | |

1. Aim the camera at colour bar chart.
2. Record it for 10 min with S−VHS−C−Movie in the SP mode.
3. Connect the oscilloscope to Video out.
4. Playback the recorded signal.
5. Adjust VR3007 so that signal level is A=1.0+−0.1Vp−p.

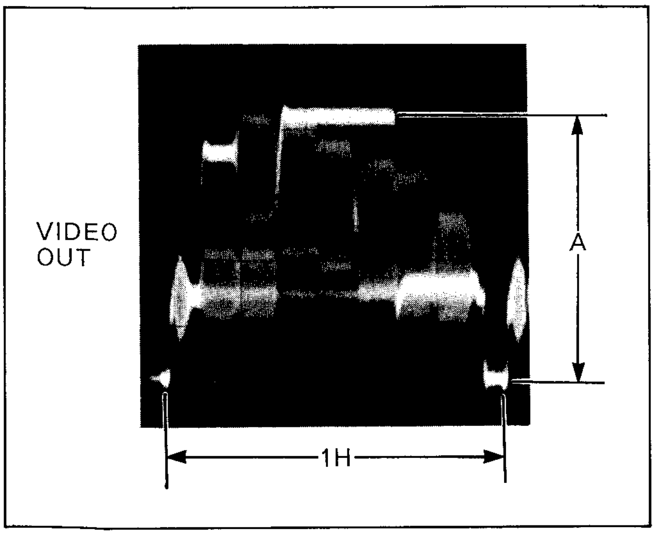


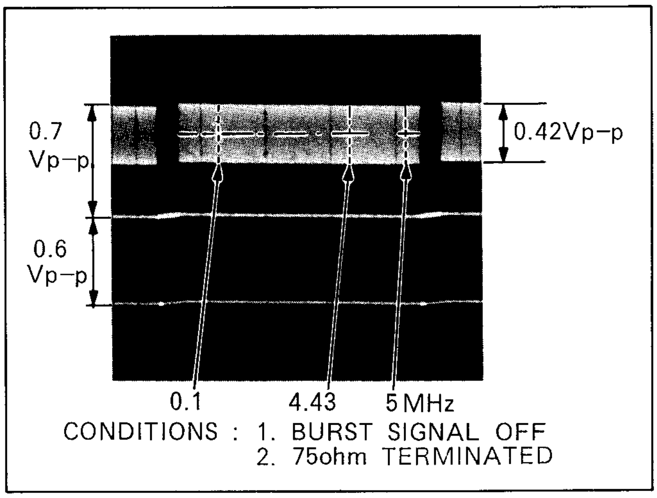
Fig. V5

## 10. COS EQ ADJUSTMENT

| TP | ADJ. | MODE | INPUT |
|---|---|---|---|
| S−VHS LUMI OUT | VR3007 | S-VHS SELF RECORDING (SP) | VIDEO SWEEP SIGNAL |
| **TAPE** | **M. EQ.** | **SPEC.** | |
| S-VHS BLANK TAPE | VIDEO SWEEP/ OSCILLO-SCOPE | A = −6±1dB (56∼71%) | |

Note:
Edit switch must be off.

1. Set the sweep generator output as shown below.



CONDITIONS : 1. BURST SIGNAL OFF
2. 75ohm TERMINATED

Fig. V6

2. Supply sweep signal to C3060.
3. Record the signal for a about ten minutes.
4. Playback the recorded signal.
5. Adjust VR3007 so that level at 4MHz is within spec. as shown in Fig.V12.

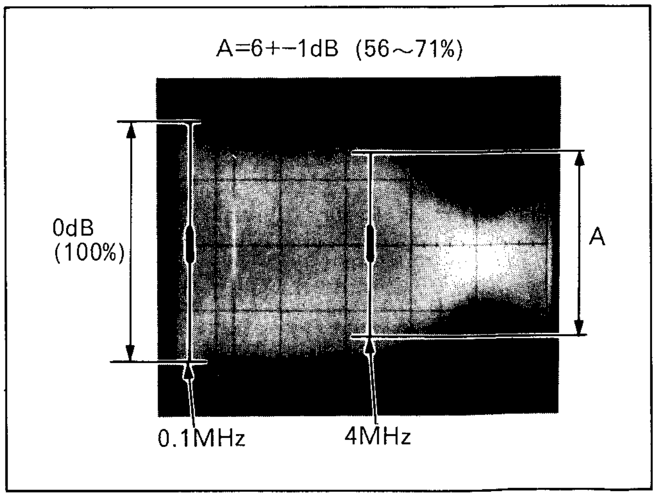


Fig. V7

### 11. HEAD AMP FREQUENCY RESPONSE ADJUSTMENT

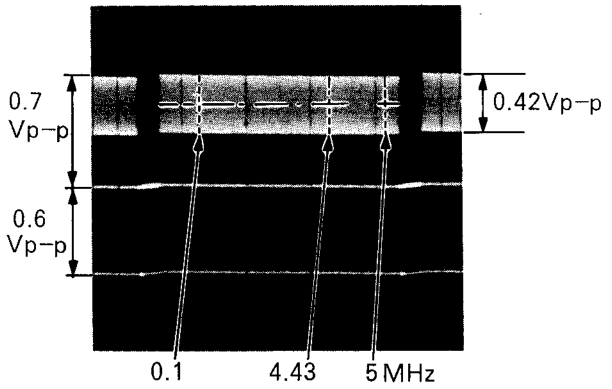
Purpose:
To improve Video Frequency Response Level.

Symptom of Misadjustment:
Video Frequency Response deteriorates.
Picture is noisy.

| TP | ADJ. | MODE | INPUT |
|---|---|---|---|
| VIDEO OUT | VR3008 | SELF RECORDING (SP) | VIDEO SWEEP SIGNAL |
| **TAPE** | **M. EQ.** | **SPEC.** | |
| BLANK TAPE | VIDEO SWEEP/ OSCILLO-SCOPE | A=0dB+−1dB (89∼112%) | |

Note:
Edit switch must be off.

1. Set the sweep generator output as shown below.



CONDITIONS : 1. BURST SIGNAL OFF
2. 75ohm TERMINATED

Fig. V8

2. Supply sweep signal to C3060.
3. Record the signal for ten minutes.
4. Play back the recorded signal.
5. Adjust VR3008 so that the level is within the 2MHz spec. as shown below.

A=0+−1dB (89−112%)

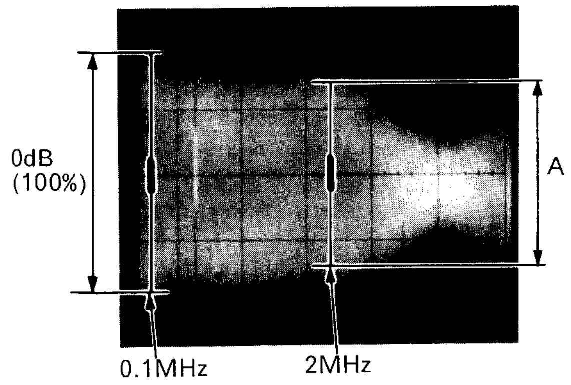


Fig. V9

## AUDIO SECTION

### 12. AUDIO BIAS CURRENT ADJUSTMENT

| TP | ADJ. | MODE | INPUT |
|---|---|---|---|
| TL4001 (HOT)<br>TL4002 (GND) | VR4002 | REC | |
| **TAPE** | **M. EQ.** | **SPEC.** | |
| BLANK TAPE | V.T.V.M. | 2.7mVrms±0.1mVrms | |

### 13. AUDIO PLAYBACK LEVEL ADJUSTMENT

| TP | ADJ. | MODE | INPUT |
|---|---|---|---|
| LINE OUT | VR4001 | VHS SELF RECORDING | 1kHz AUDIO −50dB Signal/ VIDEO SIGNAL |
| **TAPE** | **M. EQ.** | **SPEC.** | |
| BLANK TAPE | SIGNAL GENERA-TOR/V.T.V.M. | | |

Note:

**Audio select SW must be normal**

1. **Supply the audio signal (1KHz/−50dB sine-wave) to audio circuit through the MIC Input Jack.**
2. **Set the audio select SW to Normal position.**
3. **Adjust VR4001 so that the level is EE Level −8dB±0.5dB.**

## Hi-Fi AUDIO SECTION

### 14. Hi-Fi AUDIO RECORDING CURRENT ADJUSTMENT

| TP | ADJ. | MODE | INPUT |
|---|---|---|---|
| TL5003 (HOT)<br>TL5001 (GND) | VR4502 | S-VHS RECORDING | |
| **TAPE** | **M. EQ.** | **SPEC.** | |
| VFM8180HUPF | OSCILLO-SCOPE | 200+−5mVp−p | |

1. Connect the OSCILLOSCOPE to TL5003(HOT) and TL5001(GND).
2. Adjust VR4502 so that the Audio recording current is 200+−5mVp−p as shown below.

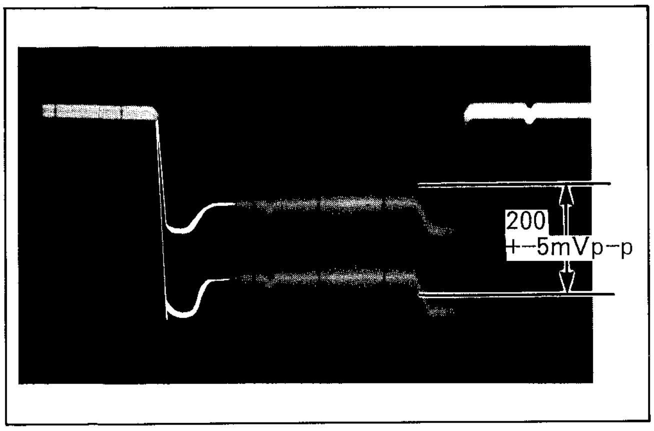


Fig. V10

### 15. AUDIO MUTING ADJSUTMENT

| TP | ADJ. | MODE | INPUT |
|---|---|---|---|
| TP5001 | VR4501 | SELF RECORDING | 1kHz, −10dB AUDIO SIG. |
| **TAPE** | **M. EQ.** | **SPEC.** | |
| VFM8180HUPF | SIGNAL GENERATOR/ OSCILLO- SCOPE | DC LEVEL=2V | |

Note:
Tape Interchangeability Adjustment must be completed before this adjustment.

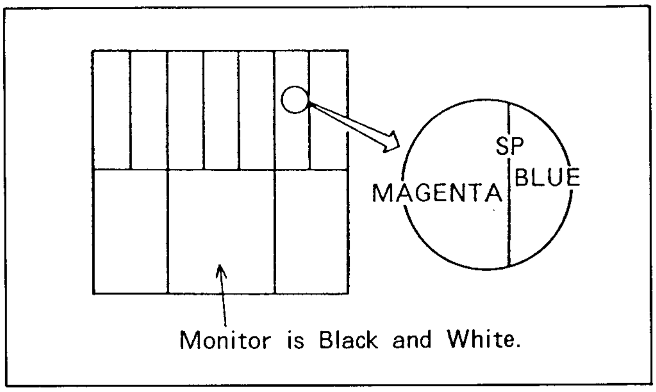
1. Playback the Alignment tape.
2. Push the tracking Button so that signal level at TP5001 becomes 18~20mVp-p.
3. Adjust VR4501 so that sound mode change to normal from Hi-Fi mode.

## SYSTEM CONTROL SECTION

### 16. CHARACTER POSITION ADJUSTMENT

| TP | ADJ. | MODE | INPUT |
|---|---|---|---|
| MONITOR TV | C6102 | STOP | COLOUR BAR |
| **TAPE** | **M. EQ.** | **SPEC.** | |
| | MONITOR TV | | |

1. Connect the EVF unit to the VTR unit.
2. Supply the colour bar signal to C3060.
3. Adjust the C6102 so that the character position is shown below.



Monitor is Black and White.

Fig. V11

### 17. DISPLAY MICROPROCESSOR FREQ. ADJUSTMENT

| TP | ADJ. | MODE | INPUT |
|---|---|---|---|
| TL6101 | C6108 | STOP | |
| **TAPE** | **M. EQ.** | **SPEC.** | |
| | FREQ. COUNTER | 327680+−1.6Hz | |

1. Adjust the C6108 so the frequency counter reads 327680±1.6Hz.

## 18. VITC SIGNAL LEVEL ADJUSTMENT

| TP | ADJ. | MODE | INPUT |
|---|---|---|---|
| VIDEO OUT | VR3801 | S-VHS<br>REC • PAUSE | GRAY SCALE CHART |
| **TAPE** | **M. EQ.** | **SPEC.** | |
| | VITC GENERATOR/<br>OSCILLO-SCOPE | V/S 1.8+−0.07<br>(540+−20mVp-p) | |

1. Aim the Camera at Gray Scale Chart.
2. Set the unit to S−VHS−C−Movie. Mode and set to recording mode.
3. Adjust the VR3801 so that ratio of V and S is 1.8+−0.07 as shown below.

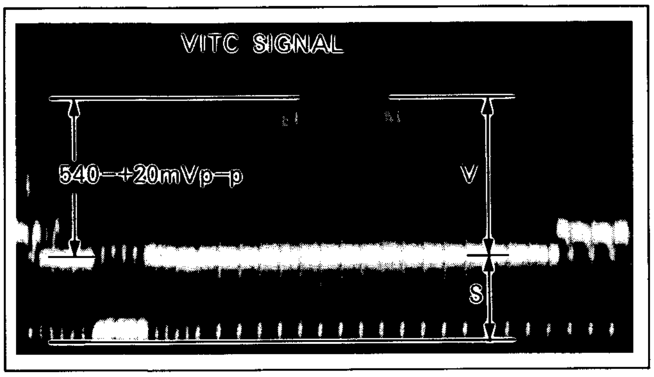


Fig. V12

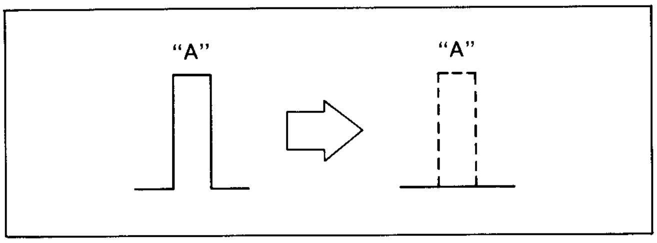


Fig. V13

## 19. UNDER CUT ADJUSTMENT

| TP | ADJ. | MODE | INPUT |
|---|---|---|---|
| TL6004 | VR6001 | REC | BATTERY TERMINAL (+) and (−) |
| **TAPE** | **M. EQ.** | **SPEC.** | |
| BLANK TAPE | OSCILLO-SCOPE/<br>DC POWER SUPPLY/<br>D.V.M. | | |

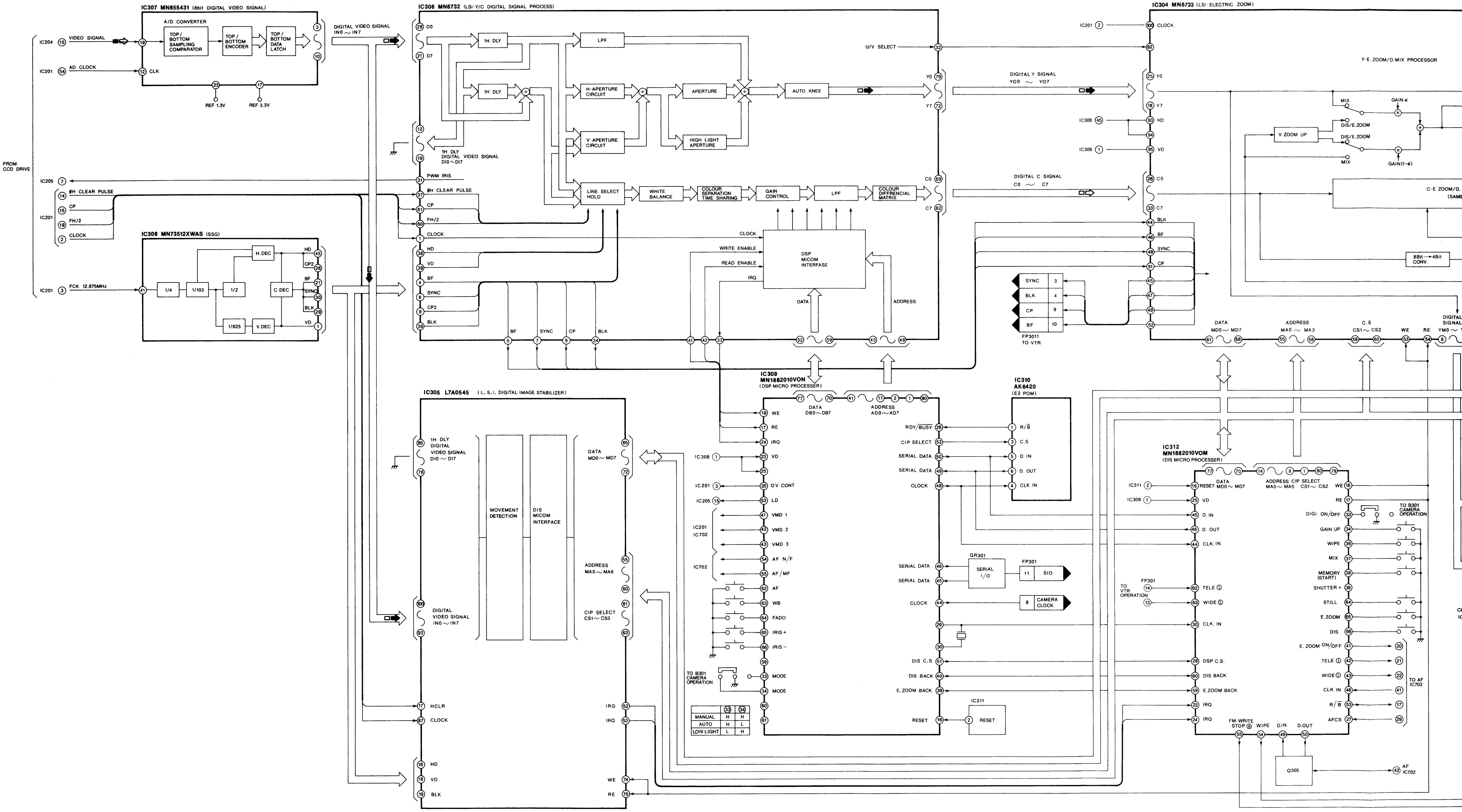
Note1:
Do not connect AC Adaptor, connect a DC Power Supply to the Battery terminal (+), (−) then Supply 5.25~5.5V.

Note2:
Connect the EVF, Camera Unit and Camera Operation Unit (Side Case (R) and (L) Unit) to the VTR Unit.

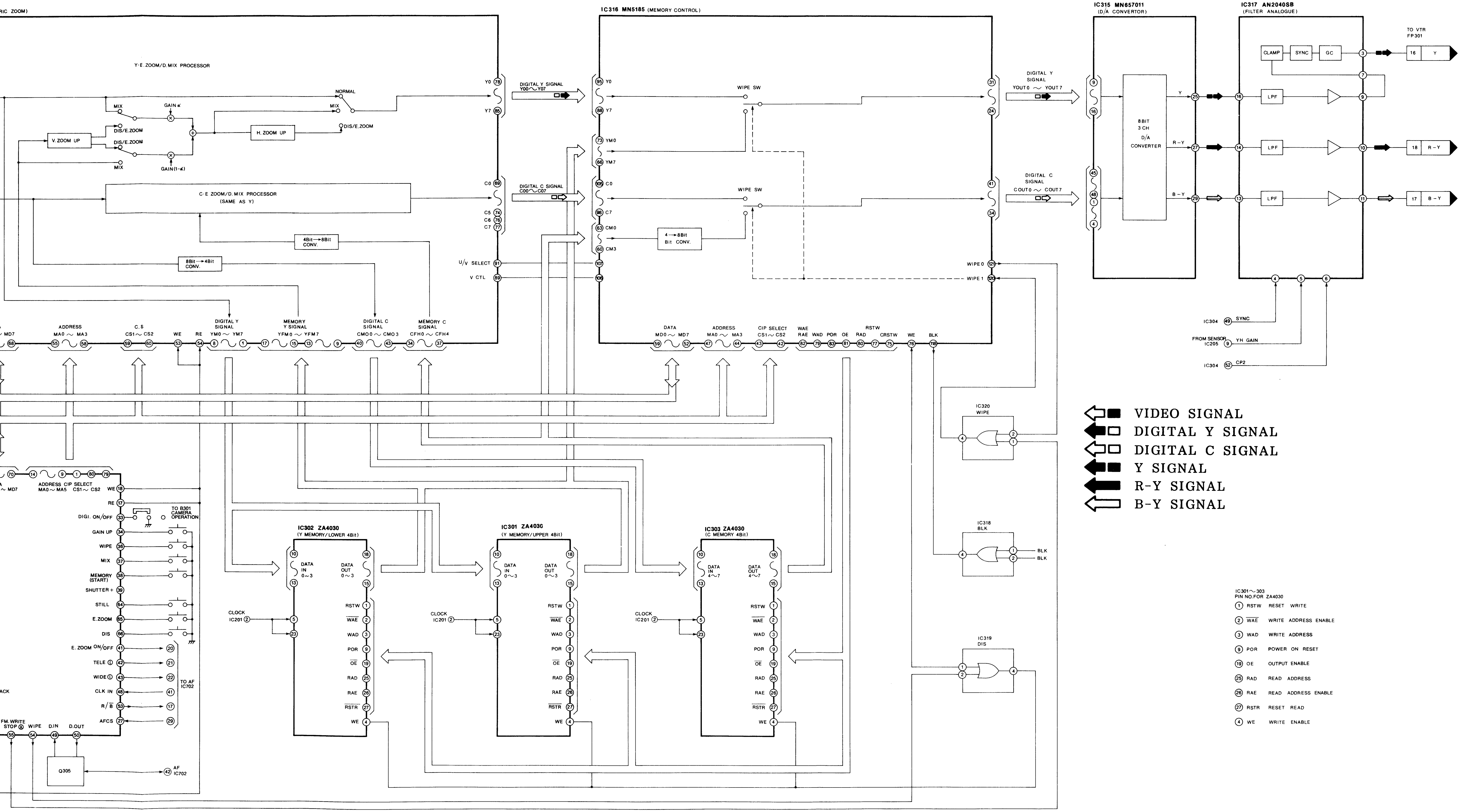
1. Turn VR6001 until pulse "A" becomes nothing, (When just pulse "A" is nothing, stop it).

# Memo

# SECTION 3
# BLOCK DIAGRAM & SCHEMATIC DIAGRAMS
## 3-1. PROCESS BLOCK DIAGRAM


IC307 MN655431 (8bit DIGITAL VIDEO SIGNAL)
A/D CONVERTER
TOP / BOTTOM SAMPLING COMPARATOR
TOP / BOTTOM ENCODER
TOP / BOTTOM DATA LATCH
VIDEO SIGNAL
AD CLOCK
CLK
REF 1.3V
REF 3.3V
FROM CCD DRIVE
IC204
IC201
IC205
ØH CLEAR PULSE
CP
FH/2
CLOCK
IC308 MN73512XWAS (SSG)
FCK 12.875MHz
1/4
1/103
1/2
H.DEC
C.DEC
1/625
V.DEC
HD
CP2
BF
SYNC
BLK
VD
DIGITAL VIDEO SIGNAL IN0 ~ IN7
IC306 MN6732 (LSI:Y/C DIGITAL SIGNAL PROCESS)
D0
D7
1H DLY
LPF
H-APERTURE CIRCUIT
V-APERTURE CIRCUIT
APERTURE
HIGH LIGHT APERTURE
AUTO KNEE
1H DLY DIGITAL VIDEO SIGNAL DI0 ~ DI7
PWM IRIS
LINE SELECT HOLD
WHITE BALANCE
COLOUR SEPARATION TIME SHARING
GAIN CONTROL
COLOUR DIFFRENCIAL MATRIX
DSP MICOM INTERFASE
WRITE ENABLE
READ ENABLE
IRQ
DATA
ADDRESS
U/V SELECT
Y0
Y7
C0
C7
DIGITAL Y SIGNAL YO0 ~ YO7
DIGITAL C SIGNAL C0 ~ C7
IC304 MN6733 (LSI: ELECTRIC ZOOM)
Y·E.ZOOM/D.MIX PROCESSOR
MIX
GAIN α
DIS/E.ZOOM
V.ZOOM UP
GAIN(1-α)
C·E ZOOM/D.
8Bit → 4Bit CONV.
SYNC
BLK
CP
BF
FP3011 TO VTR
DATA MD0 ~ MD7
ADDRESS MA0 ~ MA3
C.S CS1 ~ CS2
WE
RE
IC309 MN1882010VON (DSP MICRO PROCESSER)
DATA DB0 ~ DB7
ADDRESS AD0 ~ AD7
WE
RE
IRQ
VD
OV CONT
LD
VMD 1
VMD 2
VMD 3
AF N/F
AF/MF
AF
WB
FADO
IRIS+
IRIS−
MODE
TO B301 CAMERA OPERATION
RDY/BUSY
CIP SELECT
SERIAL DATA
CLOCK
DIS C.S
DIS BACK
E.ZOOM BACK
RESET
IC310 AK6420 (E2 POM)
R/B
C.S
D. IN
D. OUT
CLK IN
QR301 SERIAL I/O
FP301
SIO
CAMERA CLOCK
IC311
IC305 L7A0545 (L.S.I. DIGITAL IMAGE STABILIZER)
1H DLY DIGITAL VIDEO SIGNAL DI0 ~ DI7
MOVEMENT DETECTION
DIS MICOM INTERFACE
DIGITAL VIDEO SIGNAL IN0 ~ IN7
ADDRESS MA0 ~ MA6
CIP SELECT CS1 ~ CS3
HCLR
IRQ
IC312 MN1882010VOM (DIS MICRO PROCESSER)
DATA MD0 ~ MD7
ADDRESS CIP SELECT MA0 ~ MA5 CS1 ~ CS2
TO VTR OPERATION
TELE
WIDE
CLK. IN
DSP.C.S.
DIS BACK
E.ZOOM BACK
DIGI. ON/OFF
GAIN UP
WIPE
MEMORY (START)
SHUTTER+
STILL
E.ZOOM
DIS
E. ZOOM ON/OFF
AFCS
TO AF IC702
FM.WRITE STOP
D.OUT
Q305
AF IC702

|  | (33) | (34) |
|---|---|---|
| MANUAL | H | H |
| AUTO | H | L |
| LOW LIGHT | L | H |

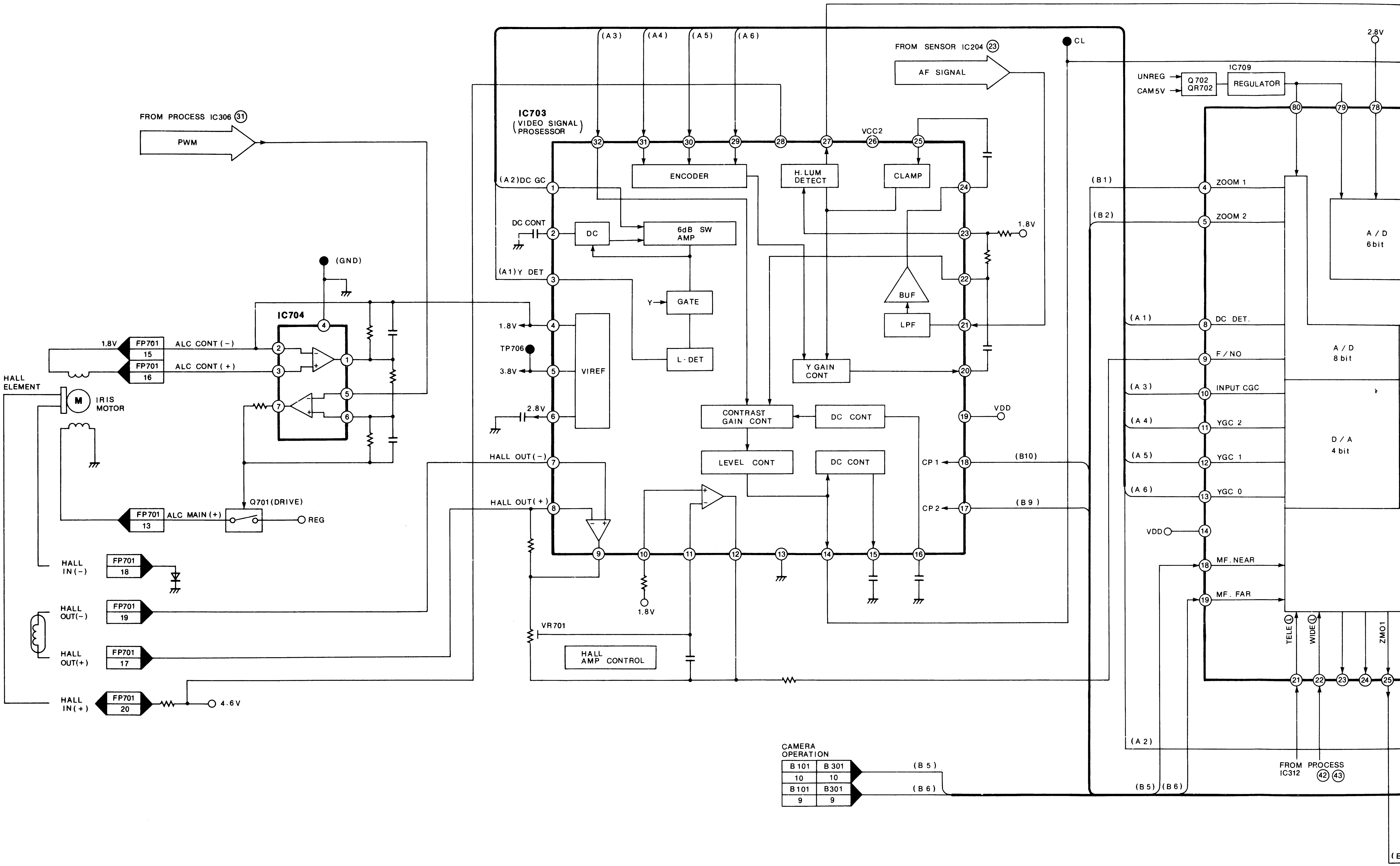


RIC ZOOM)
Y·E. ZOOM/D. MIX PROCESSOR
NORMAL
MIX
GAIN α
DIS/E.ZOOM
V. ZOOM UP
H. ZOOM UP
GAIN (1-α)
C·E ZOOM/D. MIX PROCESSOR (SAME AS Y)
4Bit→8Bit CONV.
8Bit→4Bit CONV.
U/V SELECT
V CTL
DIGITAL Y SIGNAL Y00～Y07
DIGITAL C SIGNAL C00～C07
IC316 MN5185 (MEMORY CONTROL)
WIPE SW
4→8Bit Bit CONV.
WIPE 0
WIPE 1
IC315 MN657011 (D/A CONVERTOR)
DIGITAL Y SIGNAL YOUT0 ～ YOUT7
DIGITAL C SIGNAL COUT0 ～ COUT7
8 BIT 3 CH D/A CONVERTER
IC317 AN2040SB (FILTER ANALOGUE)
CLAMP
SYNC
GC
LPF
TO VTR FP301
Y
R-Y
B-Y
IC304 SYNC
FROM SENSOR IC205 YH GAIN
IC304 CP2
DATA MD0 ～ MD7
ADDRESS MA0 ～ MA3
CIP SELECT CS1～CS2
WAE RAE WAD POR OE RAD RSTW CRSTW WE BLK
ADDRESS MA0 ～ MA3
C.S CS1～CS2
WE RE
DIGITAL Y SIGNAL YM0 ～ YM7
MEMORY Y SIGNAL YFM0 ～ YFM7
DIGITAL C SIGNAL CM00 ～ CM03
MEMORY C SIGNAL CFH0 ～ CFH4
IC320 WIPE
IC318 BLK
IC319 DIS
ADDRESS CIP SELECT MA0～MA5 CS1～CS2
WE RE
DIGI. ON/OFF
TO B301 CAMERA OPERATION
GAIN UP
WIPE
MIX
MEMORY (START)
SHUTTER+
STILL
E.ZOOM
DIS
E. ZOOM ON/OFF
TELE
WIDE
CLK IN
R/B
AFCS
TO AF IC702
FM.WRITE STOP
WIPE
D.IN
D.OUT
Q305
AF IC702
IC302 ZA4030 (Y MEMORY/LOWER 4Bit)
IC301 ZA4030 (Y MEMORY/UPPER 4Bit)
IC303 ZA4030 (C MEMORY 4Bit)
DATA IN 0～3
DATA OUT 0～3
DATA IN 4～7
DATA OUT 4～7
CLOCK IC201
RSTW WAE WAD POR OE RAD RAE RSTR WE
VIDEO SIGNAL
DIGITAL Y SIGNAL
DIGITAL C SIGNAL
Y SIGNAL
R-Y SIGNAL
B-Y SIGNAL

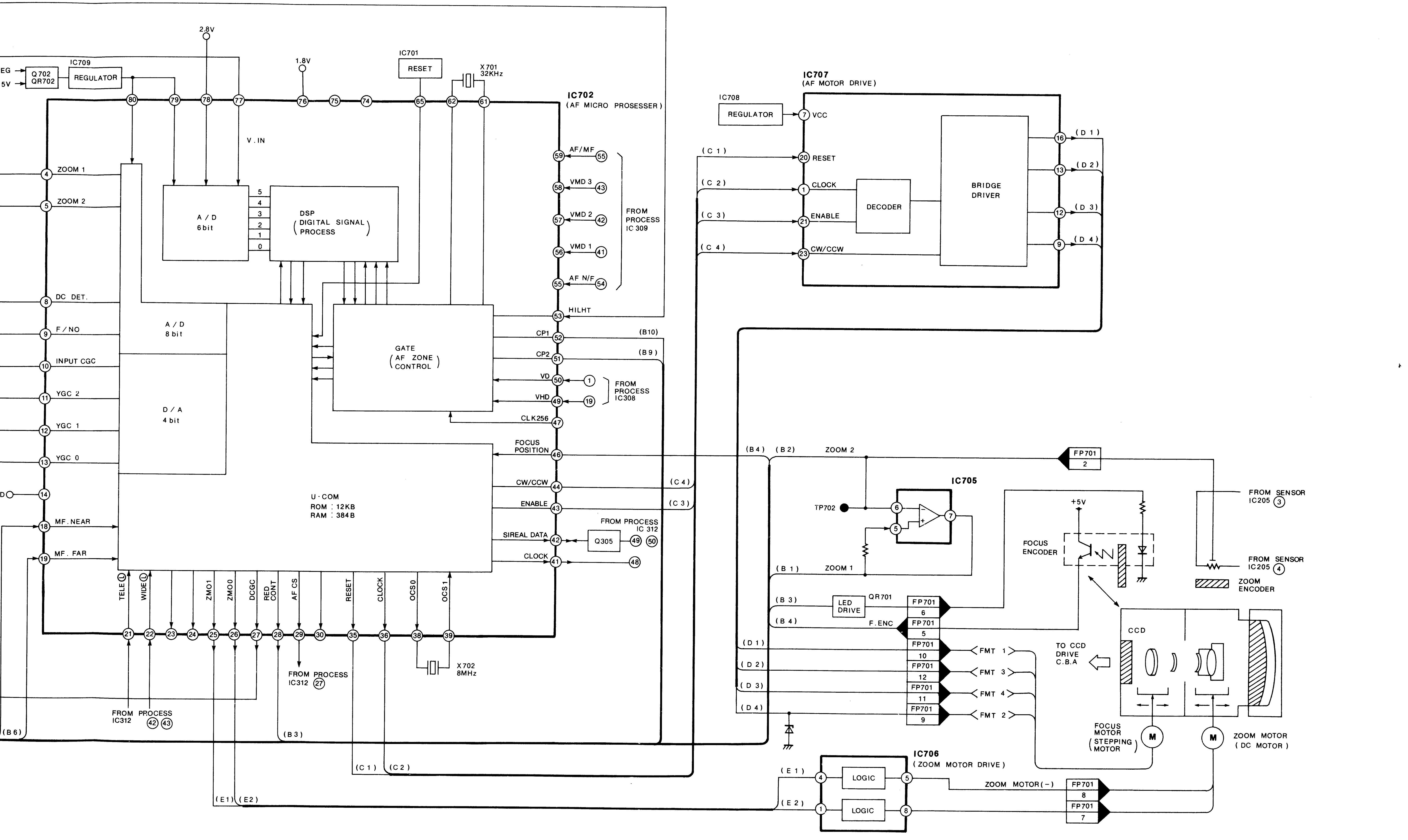
IC301～303
PIN NO.FOR ZA4030

| | | |
|---|---|---|
| ① | RSTW | RESET WRITE |
| ② | $\overline{\text{WAE}}$ | WRITE ADDRESS ENABLE |
| ③ | WAD | WRITE ADDRESS |
| ⑨ | POR | POWER ON RESET |
| ⑲ | OE | OUTPUT ENABLE |
| ㉕ | RAD | READ ADDRESS |
| ㉖ | RAE | READ ADDRESS ENABLE |
| ㉗ | RSTR | RESET READ |
| ④ | WE | WRITE ENABLE |

## 3-2. AUTO FOCUS BLOCK DIAGRAM

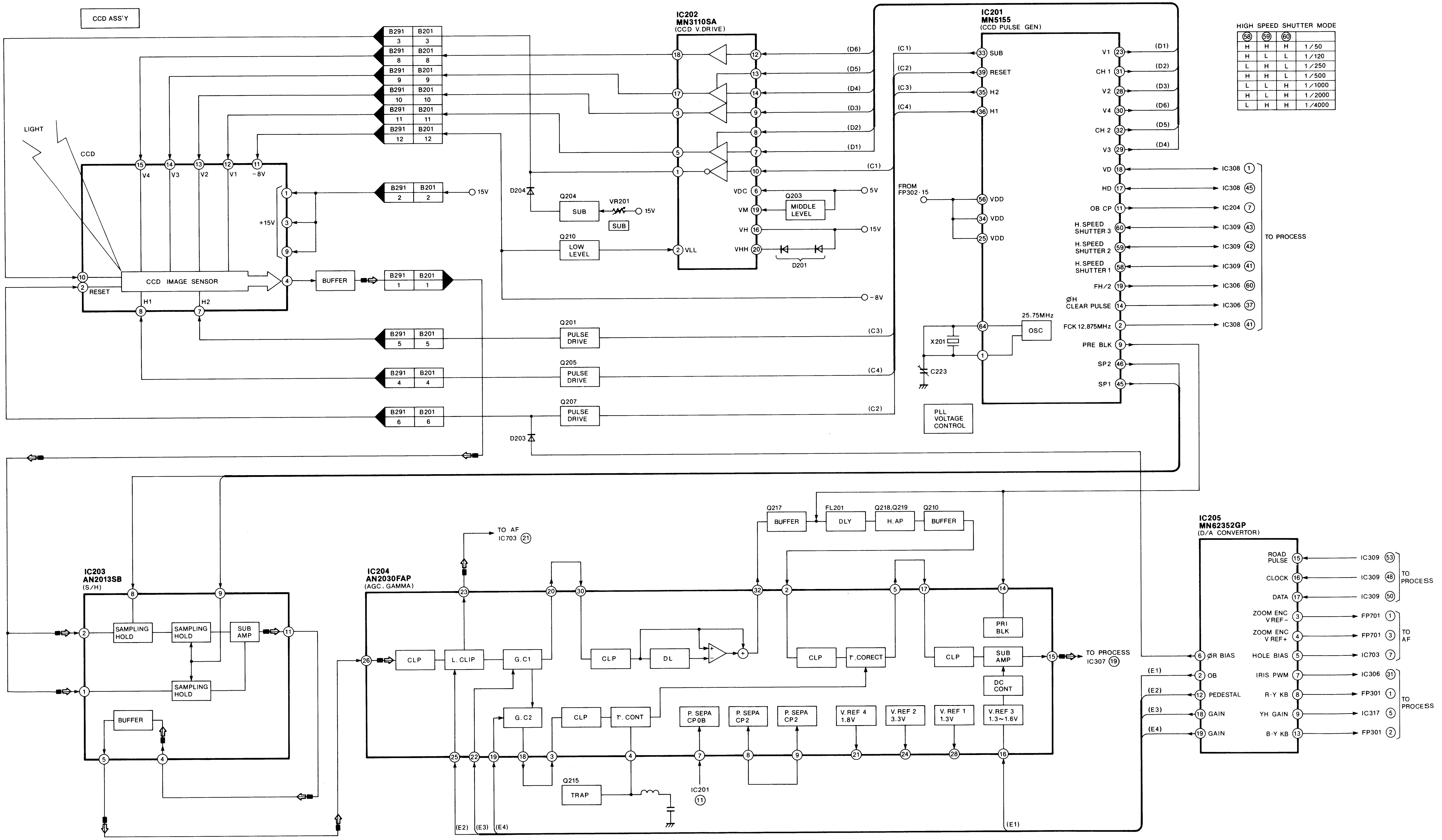

FROM PROCESS IC306 ㉛
PWM
IC703
(VIDEO SIGNAL PROSESSOR)
(A3)
(A4)
(A5)
(A6)
FROM SENSOR IC204 ㉓
AF SIGNAL
CL
VCC2
(A2)DC GC
DC CONT
(A1)Y DET
ENCODER
6dB SW AMP
DC
GATE
L・DET
VIREF
H. LUM DETECT
CLAMP
BUF
LPF
Y GAIN CONT
CONTRAST GAIN CONT
DC CONT
LEVEL CONT
DC CONT
1.8V
VDD
CP 1
CP 2
(B10)
(B9)
(GND)
IC704
1.8V
FP701 15
FP701 16
ALC CONT (−)
ALC CONT (+)
HALL ELEMENT
IRIS MOTOR
M
TP706
3.8V
2.8V
HALL OUT(−)
HALL OUT(+)
FP701 13
ALC MAIN (+)
Q701(DRIVE)
REG
HALL IN(−)
FP701 18
HALL OUT(−)
FP701 19
HALL OUT(+)
FP701 17
HALL IN(+)
FP701 20
4.6V
VR701
HALL AMP CONTROL
CAMERA OPERATION
B101 10
B301 10
B101 9
B301 9
(B5)
(B6)
UNREG
CAM5V
Q702 QR702
IC709
REGULATOR
2.8V
(B1)
(B2)
ZOOM 1
ZOOM 2
A / D 6bit
(A1)
DC DET.
F / NO
A / D 8bit
(A3)
INPUT CGC
(A4)
YGC 2
D / A 4bit
(A5)
YGC 1
(A6)
YGC 0
VDD
MF. NEAR
MF. FAR
TELE Ⓛ
WIDE Ⓛ
ZMO1
(A2)
FROM PROCESS IC312 ㊷ ㊸
(B5)
(B6)

**Back Page:**
**PROCESS Section**


2.8V
1.8V
IC709
REGULATOR
Q702
QR702
EG
5V
IC701
RESET
X701
32KHz
IC702
(AF MICRO PROSESSER)
V.IN
ZOOM 1
ZOOM 2
A/D
6bit
DSP
(DIGITAL SIGNAL PROCESS)
AF/MF
VMD 3
VMD 2
VMD 1
AF N/F
FROM PROCESS IC 309
DC DET.
F/NO
INPUT CGC
YGC 2
YGC 1
YGC 0
MF. NEAR
MF. FAR
A/D
8 bit
D/A
4 bit
GATE
(AF ZONE CONTROL)
HILHT
CP1
CP2
VD
VHD
CLK256
FROM PROCESS IC308
FOCUS POSITION
CW/CCW
ENABLE
SIREAL DATA
CLOCK
U-COM
ROM : 12KB
RAM : 384B
FROM PROCESS IC 312
Q305
TELE
WIDE
ZMO1
ZMO0
DCGC
RED CONT
AF CS
RESET
CLOCK
OCS0
OCS1
X702
8MHz
FROM PROCESS IC312 ㉗
FROM PROCESS IC312 ㊷ ㊸
(B6)
(B3)
(C1)
(C2)
(E1)
(E2)
(B10)
(B9)
(C4)
(C3)
IC707
(AF MOTOR DRIVE)
IC708
REGULATOR
VCC
RESET
CLOCK
ENABLE
CW/CCW
DECODER
BRIDGE DRIVER
(D1)
(D2)
(D3)
(D4)
(B4)
(B2)
ZOOM 2
FP701
IC705
TP702
ZOOM 1
(B1)
FROM SENSOR IC205 ③
FROM SENSOR IC205 ④
+5V
FOCUS ENCODER
ZOOM ENCODER
(B3)
LED DRIVE
QR701
F.ENC
FMT 1
FMT 3
FMT 4
FMT 2
TO CCD DRIVE C.B.A
CCD
FOCUS MOTOR (STEPPING MOTOR)
ZOOM MOTOR (DC MOTOR)
M
IC706
(ZOOM MOTOR DRIVE)
LOGIC
ZOOM MOTOR(-)

## 3-3. CCD DRIVE BLOCK DIAGRAM

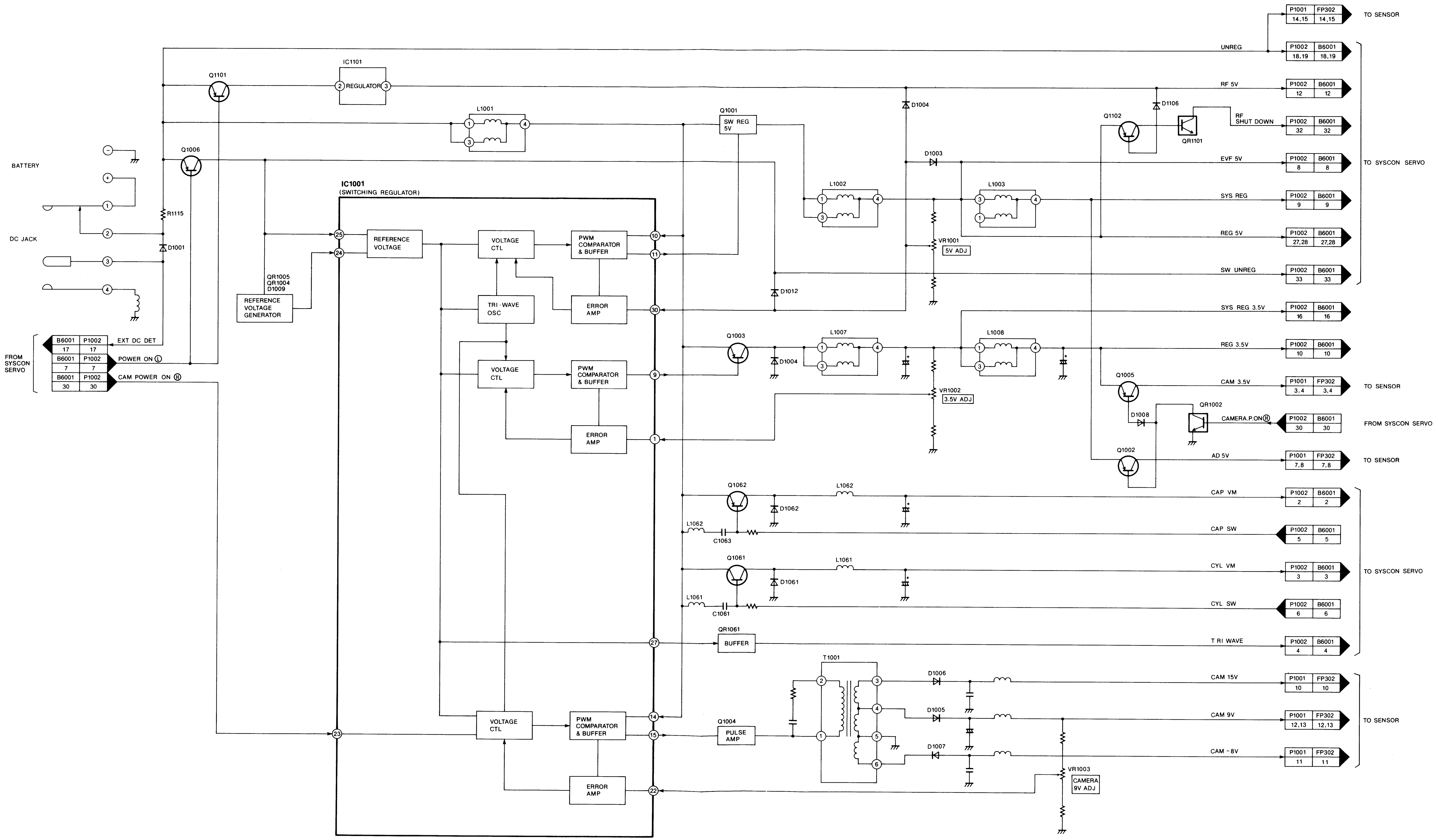
⇦■ VIDEO SIGNAL


CCD ASS'Y
LIGHT
CCD
V4
V3
V2
V1
-8V
+15V
CCD IMAGE SENSOR
RESET
H1
H2
BUFFER
B291
B201
15V
IC202
MN3110SA
(CCD V.DRIVE)
VDC
VM
VH
VHH
VLL
5V
-8V
Q203
MIDDLE LEVEL
D201
D204
Q204
SUB
VR201
Q210
LOW LEVEL
Q201
PULSE DRIVE
Q205
PULSE DRIVE
Q207
PULSE DRIVE
D203
(D1)
(D2)
(D3)
(D4)
(D5)
(D6)
(C1)
(C2)
(C3)
(C4)
IC201
MN5155
(CCD PULSE GEN)
SUB
RESET
H2
H1
VDD
FROM FP302-15
X201
C223
25.75MHz
OSC
PLL VOLTAGE CONTROL
V1
CH 1
V2
V4
CH 2
V3
VD
HD
OB CP
H.SPEED SHUTTER 3
H.SPEED SHUTTER 2
H.SPEED SHUTTER 1
FH/2
ØH CLEAR PULSE
FCK 12.875MHz
PRE BLK
SP2
SP1
IC308 ①
IC308 ㊺
IC204 ⑦
IC309 ㊸
IC309 ㊷
IC309 ㊶
IC306 (60)
IC306 ㊲
IC308 ㊶
TO PROCESS
IC203
AN2013SB
(S/H)
SAMPLING HOLD
SUB AMP
BUFFER
IC204
AN2030FAP
(AGC, GAMMA)
TO AF IC703 ㉑
CLP
L. CLIP
G.C1
G.C2
DL
T. CONT
Q215
TRAP
IC201 ⑪
Q217
BUFFER
FL201
DLY
Q218,Q219
H.AP
Q210
BUFFER
r.CORECT
PRI BLK
SUB AMP
DC CONT
P. SEPA CP0B
P. SEPA CP2
P. SEPA CP2
V.REF 4 1.8V
V.REF 2 3.3V
V.REF 1 1.3V
V.REF 3 1.3~1.6V
TO PROCESS IC307 ⑲
(E1)
(E2)
(E3)
(E4)
IC205
MN62352GP
(D/A CONVERTOR)
ROAD PULSE
CLOCK
DATA
ZOOM ENC V REF-
ZOOM ENC V REF+
HOLE BIAS
IRIS PWM
R-Y KB
YH GAIN
B-Y KB
ØR BIAS
OB
PEDESTAL
GAIN
IC309 (53)
IC309 ㊽
IC309 ㊿
FP701 ①
FP701 ③
IC703 ⑦
IC306 ㉛
FP301 ①
IC317 ⑤
FP301 ②
TO AF

HIGH SPEED SHUTTER MODE

| (58) | (59) | (60) | |
|---|---|---|---|
| H | H | H | 1/50 |
| H | L | L | 1/120 |
| L | H | L | 1/250 |
| H | H | L | 1/500 |
| L | L | H | 1/1000 |
| H | L | H | 1/2000 |
| L | H | H | 1/4000 |

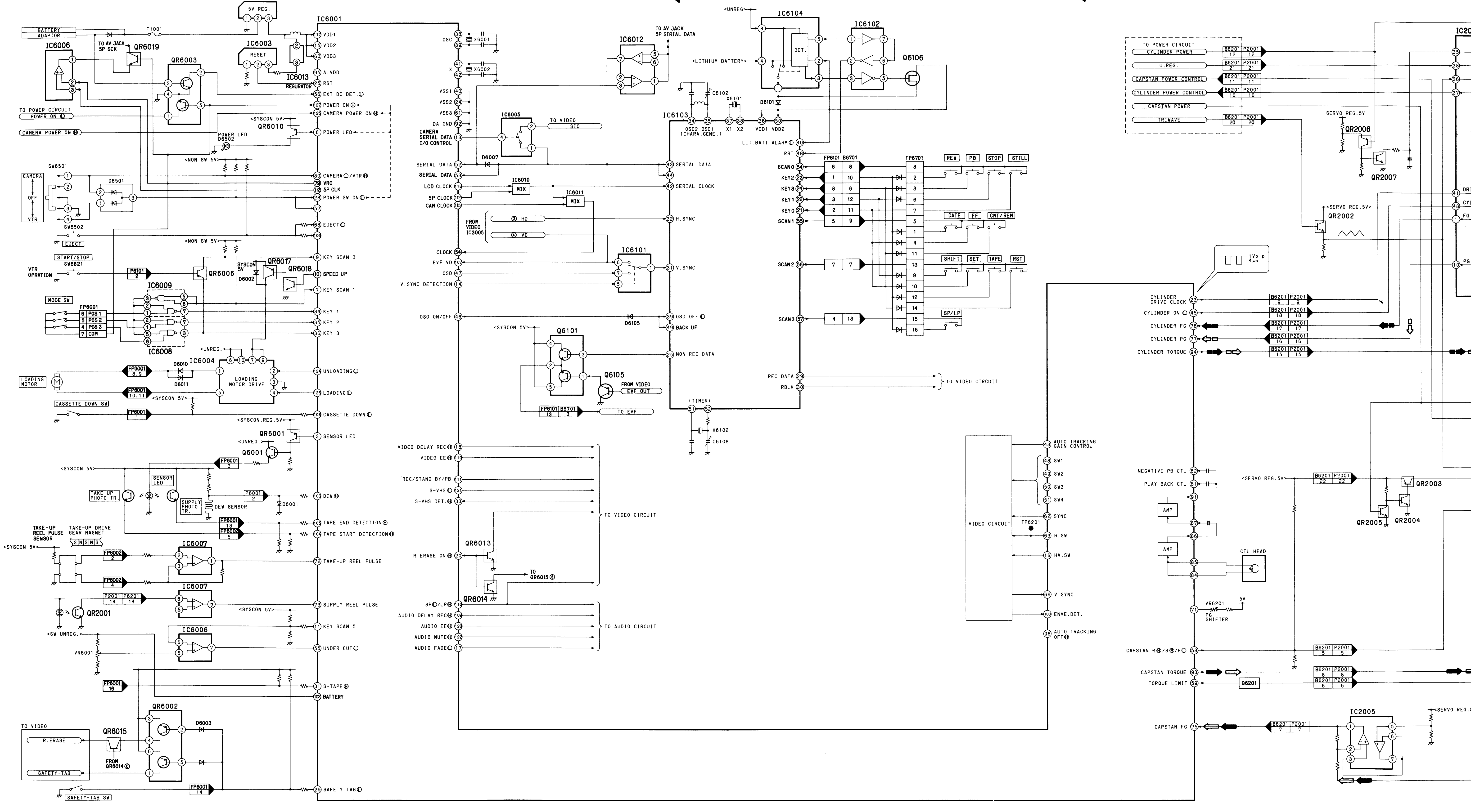
# 3-4. POWER BLOCK DIAGRAM


BATTERY
DC JACK
R1115
D1001
Q1101
Q1006
IC1101
REGULATOR
L1001
IC1001
(SWITCHING REGULATOR)
REFERENCE VOLTAGE
VOLTAGE CTL
PWM COMPARATOR & BUFFER
TRI-WAVE OSC
ERROR AMP
QR1005
QR1004
D1009
REFERENCE VOLTAGE GENERATOR
FROM SYSCON SERVO
B6001 P1002 17 17 EXT DC DET
B6001 P1002 7 7 POWER ON Ⓛ
B6001 P1002 30 30 CAM POWER ON Ⓗ
Q1001
SW REG 5V
D1004
D1003
D1012
L1002
L1003
VR1001
5V ADJ
Q1102
D1106
QR1101
Q1003
D1004
L1007
L1008
VR1002
3.5V ADJ
Q1005
D1008
QR1002
Q1002
Q1062
D1062
L1062
C1063
Q1061
D1061
L1061
C1061
QR1061
BUFFER
T1001
Q1004
PULSE AMP
D1006
D1005
D1007
VR1003
CAMERA 9V ADJ
P1001 FP302 14,15 14,15 TO SENSOR
UNREG P1002 B6001 18,19 18,19
RF 5V P1002 B6001 12 12
RF SHUT DOWN P1002 B6001 32 32
EVF 5V P1002 B6001 8 8
SYS REG P1002 B6001 9 9
REG 5V P1002 B6001 27,28 27,28
SW UNREG P1002 B6001 33 33
TO SYSCON SERVO
SYS REG 3.5V P1002 B6001 16 16
REG 3.5V P1002 B6001 10 10
CAM 3.5V P1001 FP302 3,4 3,4 TO SENSOR
CAMERA.P.ON Ⓗ P1002 B6001 30 30 FROM SYSCON SERVO
AD 5V P1001 FP302 7,8 7,8 TO SENSOR
CAP VM P1002 B6001 2 2
CAP SW P1002 B6001 5 5
CYL VM P1002 B6001 3 3
CYL SW P1002 B6001 6 6
T RI WAVE P1002 B6001 4 4
TO SYSCON SERVO
CAM 15V P1001 FP302 10 10
CAM 9V P1001 FP302 12,13 12,13
CAM -8V P1001 FP302 11 11
TO SENSOR

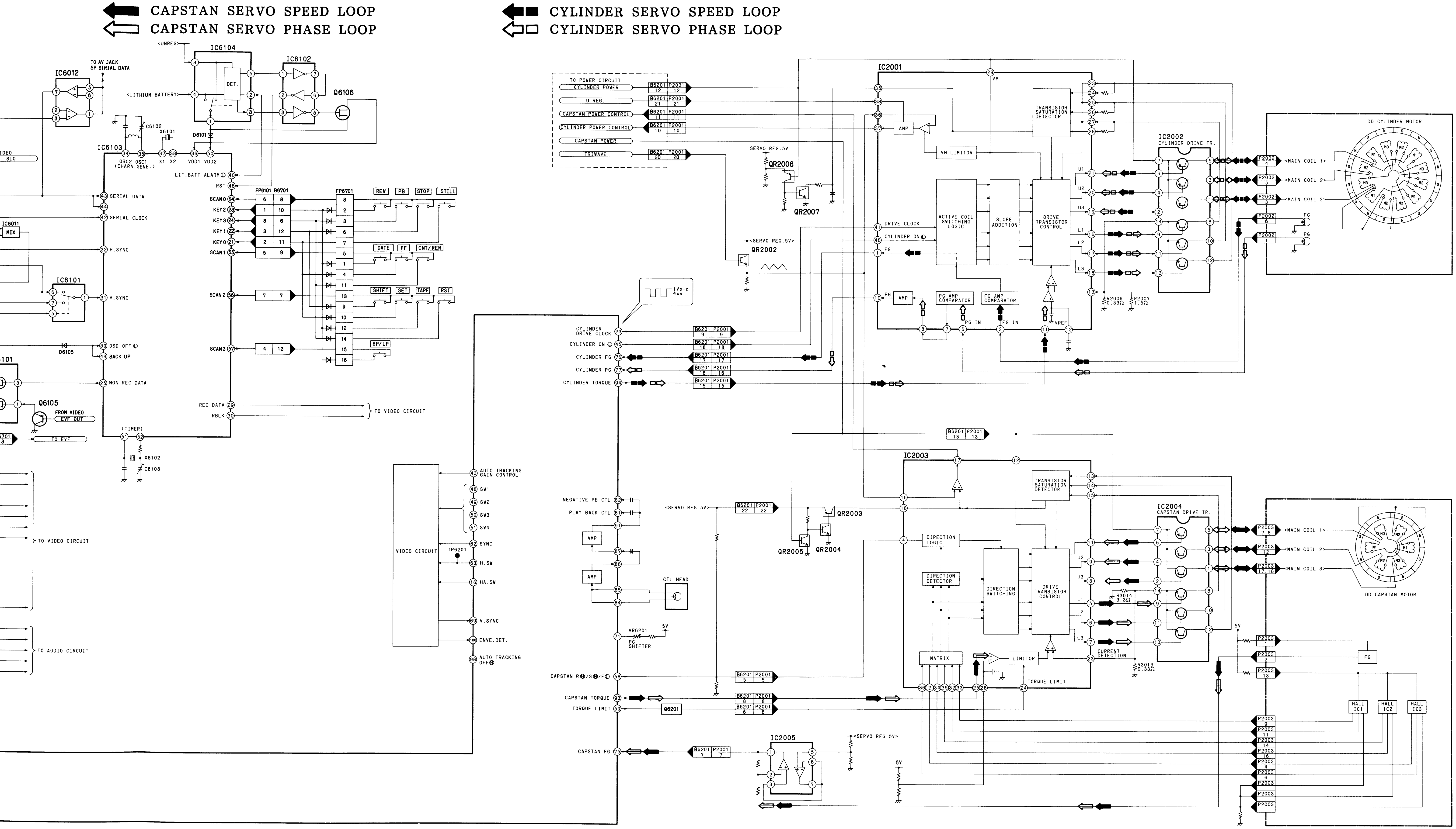
Back Page:
CCD DRIVE Section

# 3-5. SYSTEM CONTROL & SERVO BLOCK DIAGRAM

🡐 CAPSTAN SERVO SPEED LOOP
⇦ CAPSTAN SERVO PHASE LOOP
🡐■ CYLINDER SERVO SPEED LOOP
⇦□ CYLINDER SERVO PHASE LOOP



IC6001
IC6002
5V REG.
IC6003
RESET
IC6013
REGURATOR
IC6006
QR6019
QR6003
BATTERY ADAPTOR
F1001
TO AV JACK 5P SCK
TO POWER CIRCUIT POWER ON
CAMERA POWER ON
<SYSCON 5V>
QR6010
POWER LED D6502
<NON SW 5V>
SW6501
CAMERA
OFF
VTR
D6501
SW6502
EJECT
START/STOP SW6821
VTR OPRATION
P6101 2
QR6006
SYSCON 5V
D6002
QR6017
QR6018
MODE SW
FP6001
POS 1
POS 2
POS 3
COM
IC6009
IC6008
<UNREG.>
IC6004
D6010
D6011
LOADING MOTOR DRIVE
LOADING MOTOR
FP6001 8,9
FP6001 10,11
CASSETTE DOWN SW
FP6001 1
<SYSCON.REG.5V>
QR6001
Q6001
FP6001 3
TAKE-UP PHOTO TR.
SENSOR LED
SUPPLY PHOTO TR.
DEW SENSOR
P6001 2
D6001
FP6001 13
FP6002 5
TAKE-UP REEL PULSE SENSOR
TAKE-UP DRIVE GEAR MAGNET
IC6007
FP6002 2
FP6002 4
P2001 P6201 14 14
QR2001
IC6006
<SW UNREG.>
VR6001
FP6001 16
QR6002
D6003
TO VIDEO
R.ERASE
SAFETY-TAB
QR6015
FROM QR6014 Ⓒ
FP6001 14
SAFETY-TAB SW
VDD1
VDD2
VDD3
A.VDD
RST
EXT DC DET. Ⓛ
POWER ON Ⓗ
CAMERA POWER ON Ⓗ
POWER LED
CAMERA Ⓛ/VTR Ⓗ
VRO
5P CLK
POWER SW ON Ⓛ
EJECT Ⓛ
KEY SCAN 3
SPEED UP
KEY SCAN 1
KEY 1
KEY 2
KEY 3
UNLOADING Ⓛ
LOADING Ⓛ
CASSETTE DOWN Ⓛ
SENSOR LED
DEW Ⓗ
TAPE END DETECTION Ⓗ
TAPE START DETECTION Ⓗ
TAKE-UP REEL PULSE
SUPPLY REEL PULSE
KEY SCAN 5
UNDER CUT Ⓛ
S-TAPE Ⓗ
BATTERY
SAFETY TAB Ⓛ
OSC
X6001
X
X6002
VSS1
VSS2
VSS3
DA GND
CAMERA SERIAL DATA I/O CONTROL
SERIAL DATA
SERIAL DATA
LCD CLOCK
5P CLOCK
CAM CLOCK
IC6005
TO VIDEO SIO
D6007
IC6010 MIX
IC6011 MIX
FROM VIDEO IC3005
HD
VD
CLOCK
EVF VD
OSD
V.SYNC DETECTION
IC6101
OSD ON/OFF
D6105
Q6101
Q6105
FROM VIDEO EVF OUT
FP6101 B6701 13 3
TO EVF
VIDEO DELAY REC Ⓗ
VIDEO EE Ⓗ
REC/STAND BY/PB
S-VHS Ⓛ
S-VHS DET. Ⓗ
TO VIDEO CIRCUIT
QR6013
R ERASE ON Ⓗ
TO QR6015 Ⓢ
QR6014
SP Ⓛ/LP Ⓗ
AUDIO DELAY REC Ⓗ
AUDIO EE Ⓗ
AUDIO MUTE Ⓗ
AUDIO FADE Ⓛ
TO AUDIO CIRCUIT
IC6012
TO AV JACK 5P SIRIAL DATA
IC6103
C6102
X6101
OSC2 OSC1 (CHARA.GENE.)
X1 X2
VDD1 VDD2
SERIAL DATA
SERIAL CLOCK
H.SYNC
V.SYNC
OSD OFF Ⓛ
BACK UP
NON REC DATA
REC DATA
RBLK
TO VIDEO CIRCUIT
(TIMER)
X6102
C6108
<UNREG>
IC6104
DET.
<LITHIUM BATTERY>
IC6102
Q6106
D6101
LIT.BATT ALARM Ⓛ
RST
SCAN0
KEY2
KEY3
KEY1
KEY0
SCAN1
SCAN2
SCAN3
FP6101 B6701
FP6701
REW
PB
STOP
STILL
DATE
FF
CNT/REM
SHIFT
SET
TAPE
RST
SP/LP
VIDEO CIRCUIT
TP6201
AUTO TRACKING GAIN CONTROL
SW1
SW2
SW3
SW4
SYNC
H.SW
HA.SW
V.SYNC
ENVE.DET.
AUTO TRACKING OFF Ⓗ
TO POWER CIRCUIT
CYLINDER POWER
U.REG.
CAPSTAN POWER CONTROL
CYLINDER POWER CONTROL
CAPSTAN POWER
TRIWAVE
B6201 P2001
SERVO REG.5V
QR2006
QR2007
<SERVO REG.5V>
QR2002
1Vp-p 4μs
CYLINDER DRIVE CLOCK
CYLINDER ON Ⓛ
CYLINDER FG
CYLINDER PG
CYLINDER TORQUE
NEGATIVE PB CTL
PLAY BACK CTL
AMP
AMP
CTL HEAD
QR2003
QR2005
QR2004
VR6201
PG SHIFTER
5V
CAPSTAN R Ⓗ/S Ⓜ/F Ⓛ
CAPSTAN TORQUE
TORQUE LIMIT
Q6201
CAPSTAN FG
IC2005
<SERVO REG.5V>
IC20
DRI
CYL
FG
PG

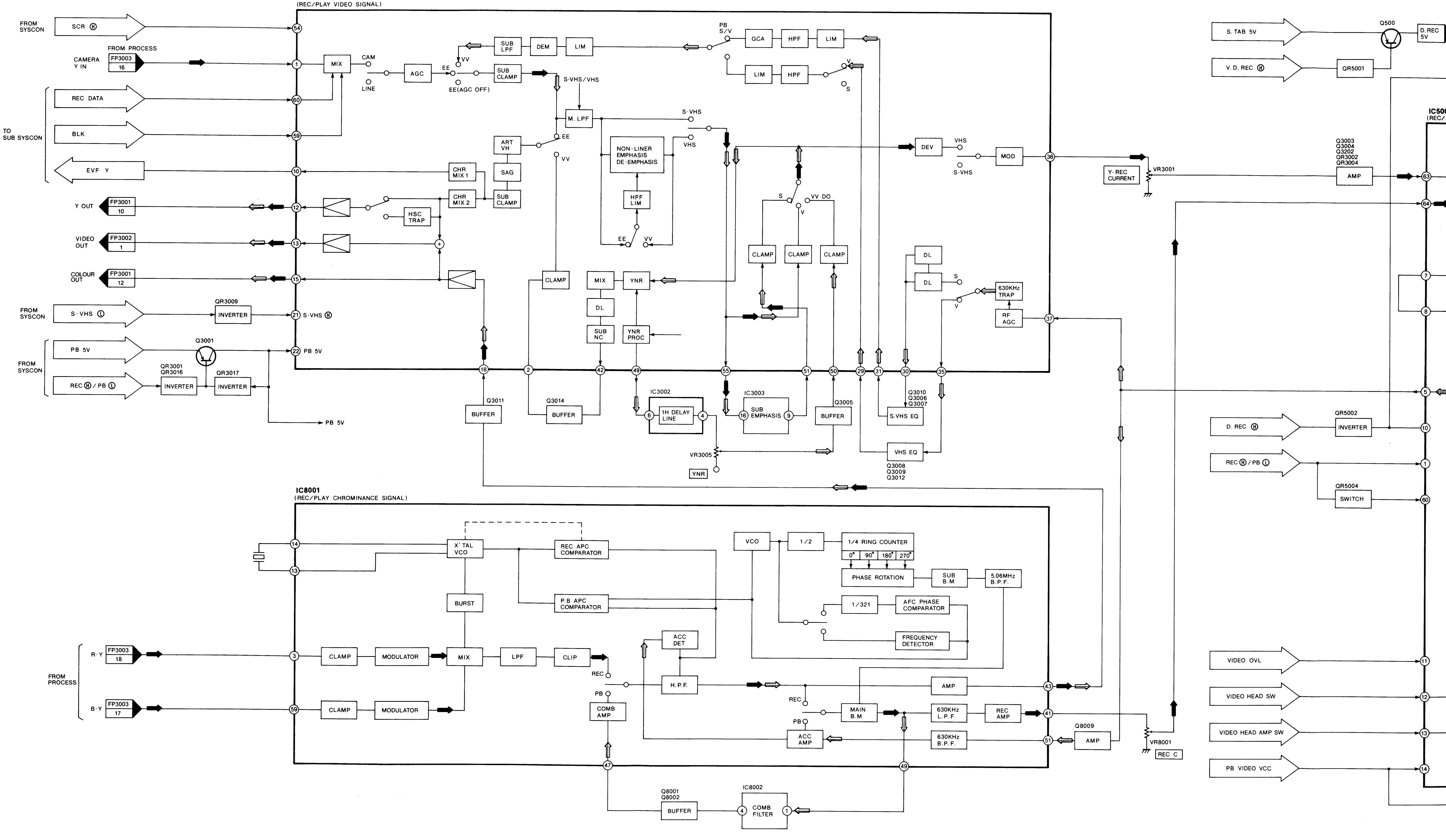

CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP
CYLINDER SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP
IC6012
IC6104
IC6102
Q6106
DET.
<UNREG>
<LITHIUM BATTERY>
TO AV JACK 5P SIRIAL DATA
IC6103
C6102
X6101
D6101
OSC2 OSC1 (CHARA.GENE.)
X1 X2
VDD1 VDD2
LIT.BATT ALARM
RST
SERIAL DATA
SERIAL CLOCK
H.SYNC
V.SYNC
OSD OFF
BACK UP
NON REC DATA
IC6011
MIX
IC6101
D6105
Q6105
FROM VIDEO EVF OUT
TO EVF
(TIMER)
X6102
C6108
TO VIDEO CIRCUIT
TO AUDIO CIRCUIT
FP6101 B6701
FP6701
SCAN0
KEY2
KEY3
KEY1
KEY0
SCAN1
SCAN2
SCAN3
REW
PB
STOP
STILL
DATE
FF
CNT/REM
SHIFT
SET
TAPE
RST
SP/LP
REC DATA
RBLK
TO VIDEO CIRCUIT
VIDEO CIRCUIT
TP6201
AUTO TRACKING GAIN CONTROL
SW1
SW2
SW3
SW4
SYNC
H.SW
HA.SW
V.SYNC
ENVE.DET.
AUTO TRACKING OFF
1Vp-p 4μs
CYLINDER DRIVE CLOCK
CYLINDER ON
CYLINDER FG
CYLINDER PG
CYLINDER TORQUE
NEGATIVE PB CTL
PLAY BACK CTL
AMP
CTL HEAD
VR6201 PG SHIFTER
5V
CAPSTAN R/S/F
CAPSTAN TORQUE
TORQUE LIMIT
Q6201
CAPSTAN FG
B6201 P2001
TO POWER CIRCUIT
CYLINDER POWER
U.REG.
CAPSTAN POWER CONTROL
CYLINDER POWER CONTROL
CAPSTAN POWER
TRIWAVE
SERVO REG.5V
QR2006
QR2007
<SERVO REG.5V>
QR2002
IC2001
VM
AMP
VM LIMITOR
TRANSISTOR SATURATION DETECTOR
ACTIVE COIL SWITCHING LOGIC
SLOPE ADDITION
DRIVE TRANSISTOR CONTROL
DRIVE CLOCK
CYLINDER ON
FG
PG
PG AMP COMPARATOR
FG AMP COMPARATOR
PG IN
FG IN
VREF
U1 U2 U3 L1 L2 L3
R2006 0.33Ω
R2007 1.5Ω
IC2002 CYLINDER DRIVE TR.
DD CYLINDER MOTOR
P2002
MAIN COIL 1
MAIN COIL 2
MAIN COIL 3
FG
PG
IC2003
QR2003
QR2004
QR2005
DIRECTION LOGIC
DIRECTION DETECTOR
DIRECTION SWITCHING
DRIVE TRANSISTOR CONTROL
TRANSISTOR SATURATION DETECTOR
MATRIX
LIMITOR
TORQUE LIMIT
CURRENT DETECTION
R3014 3.3Ω
R3013 0.33Ω
IC2004 CAPSTAN DRIVE TR.
P2003
DD CAPSTAN MOTOR
FG
HALL IC1
HALL IC2
HALL IC3
IC2005
<SERVO REG.5V>

Next Page:
LUMINANCE & CHROMINANCE Section

# 3-6. LUMINANCE & CHROMINANCE BLOCK DIAGRAM

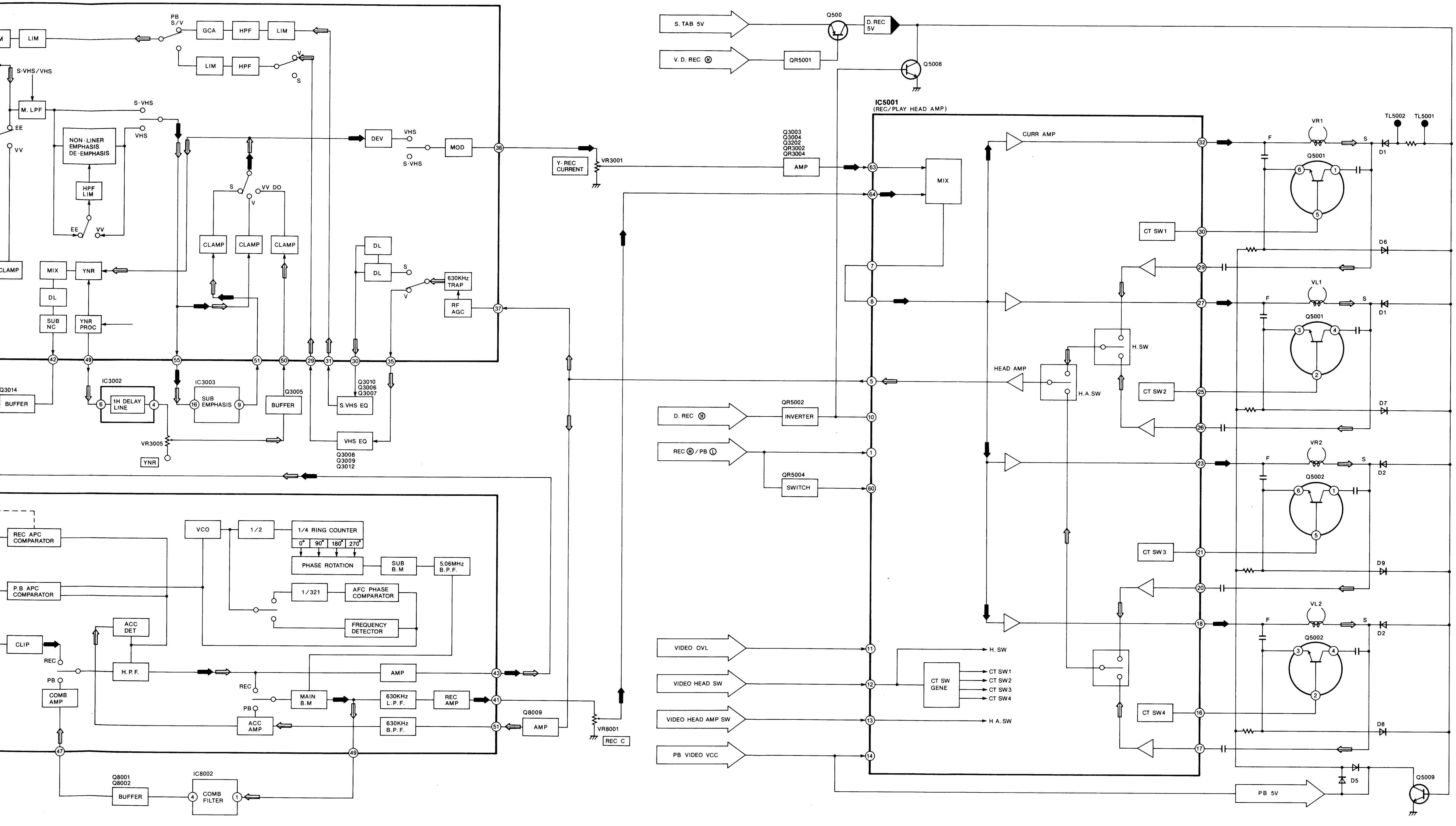
MAIN SIGNAL PATH IN REC MODE

MAIN SIGNAL PATH IN PLAYBACK M


IC3001
(REC/PLAY VIDEO SIGNAL)
FROM SYSCON
SCR Ⓗ
FROM PROCESS
CAMERA Y IN
FP3003 16
REC DATA
BLK
TO SUB SYSCON
EVF Y
Y OUT
FP3001 10
VIDEO OUT
FP3002 1
COLOUR OUT
FP3001 12
FROM SYSCON
S·VHS Ⓛ
QR3009
INVERTER
S·VHS Ⓗ
FROM SYSCON
PB 5V
Q3001
REC Ⓗ / PB Ⓛ
QR3001
QR3016
INVERTER
QR3017
INVERTER
PB 5V
MIX
CAM
LINE
AGC
EE
EE(AGC OFF)
VV
SUB LPF
DEM
LIM
SUB CLAMP
S·VHS/VHS
M. LPF
ART VH
SAG
CHR MIX 1
CHR MIX 2
SUB CLAMP
HSC TRAP
NON·LINER EMPHASIS DE·EMPHASIS
HPF LIM
S·VHS
VHS
CLAMP
MIX
YNR
DL
SUB NC
YNR PROC
PB S/V
GCA
HPF
LIM
LIM
HPF
V
S
DEV
VHS
S·VHS
MOD
S
VV DO
CLAMP
CLAMP
CLAMP
DL
DL
630KHz TRAP
RF AGC
Q3011
BUFFER
Q3014
BUFFER
IC3002
1H DELAY LINE
IC3003
SUB EMPHASIS
Q3005
BUFFER
Q3010
Q3006
Q3007
S.VHS EQ
VHS EQ
Q3008
Q3009
Q3012
VR3005
YNR
Y·REC CURRENT
VR3001
IC8001
(REC/PLAY CHROMINANCE SIGNAL)
X' TAL VCO
REC APC COMPARATOR
BURST
P.B APC COMPARATOR
VCO
1/2
1/4 RING COUNTER
0° 90° 180° 270°
PHASE ROTATION
SUB B.M
5.06MHz B.P.F.
1/321
AFC PHASE COMPARATOR
FREQUENCY DETECTOR
ACC DET
FROM PROCESS
R·Y
FP3003 18
B·Y
FP3003 17
CLAMP
MODULATOR
MIX
LPF
CLIP
REC
PB
H.P.F.
COMB AMP
AMP
REC
PB
MAIN B.M
630KHz L.P.F.
REC AMP
ACC AMP
630KHz B.P.F.
Q8009
AMP
VR8001
REC C
Q8001
Q8002
BUFFER
IC8002
COMB FILTER
S. TAB 5V
Q500
D. REC 5V
V. D. REC Ⓗ
QR5001
IC50
(REC/
Q3003
Q3004
Q3202
QR3002
QR3004
AMP
D. REC Ⓗ
QR5002
INVERTER
REC Ⓗ / PB Ⓛ
QR5004
SWITCH
VIDEO OVL
VIDEO HEAD SW
VIDEO HEAD AMP SW
PB VIDEO VCC

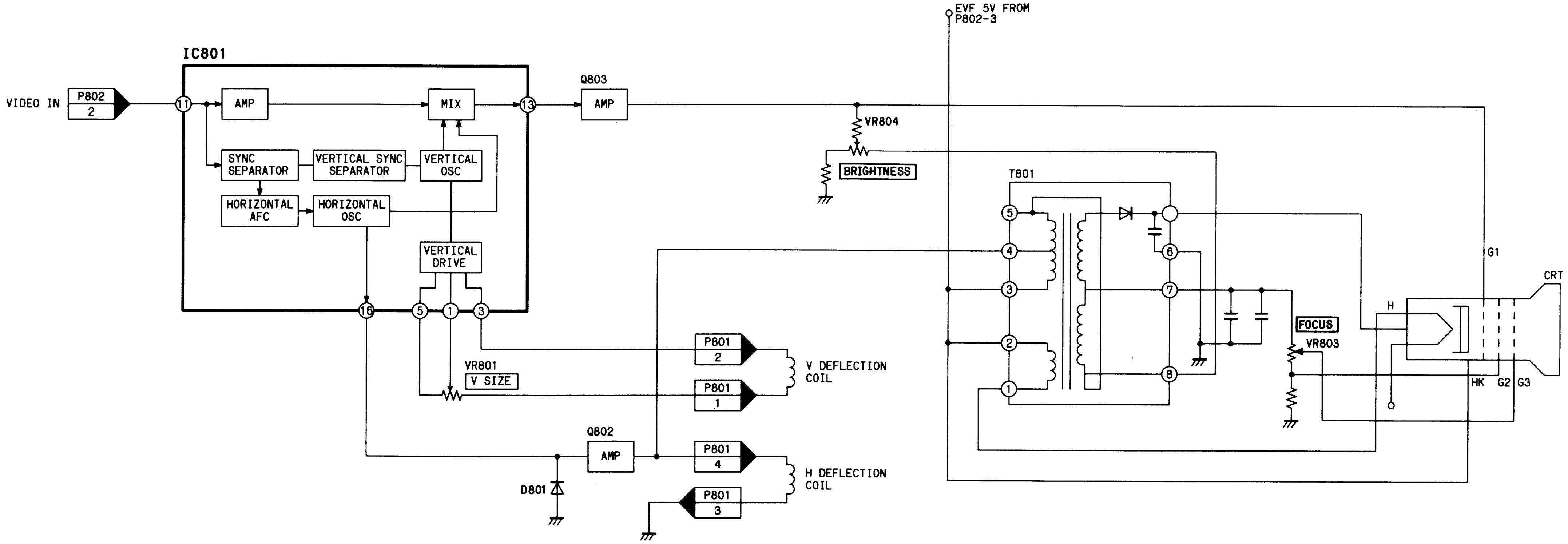
MAIN SIGNAL PATH IN REC MODE

MAIN SIGNAL PATH IN PLAYBACK MODE

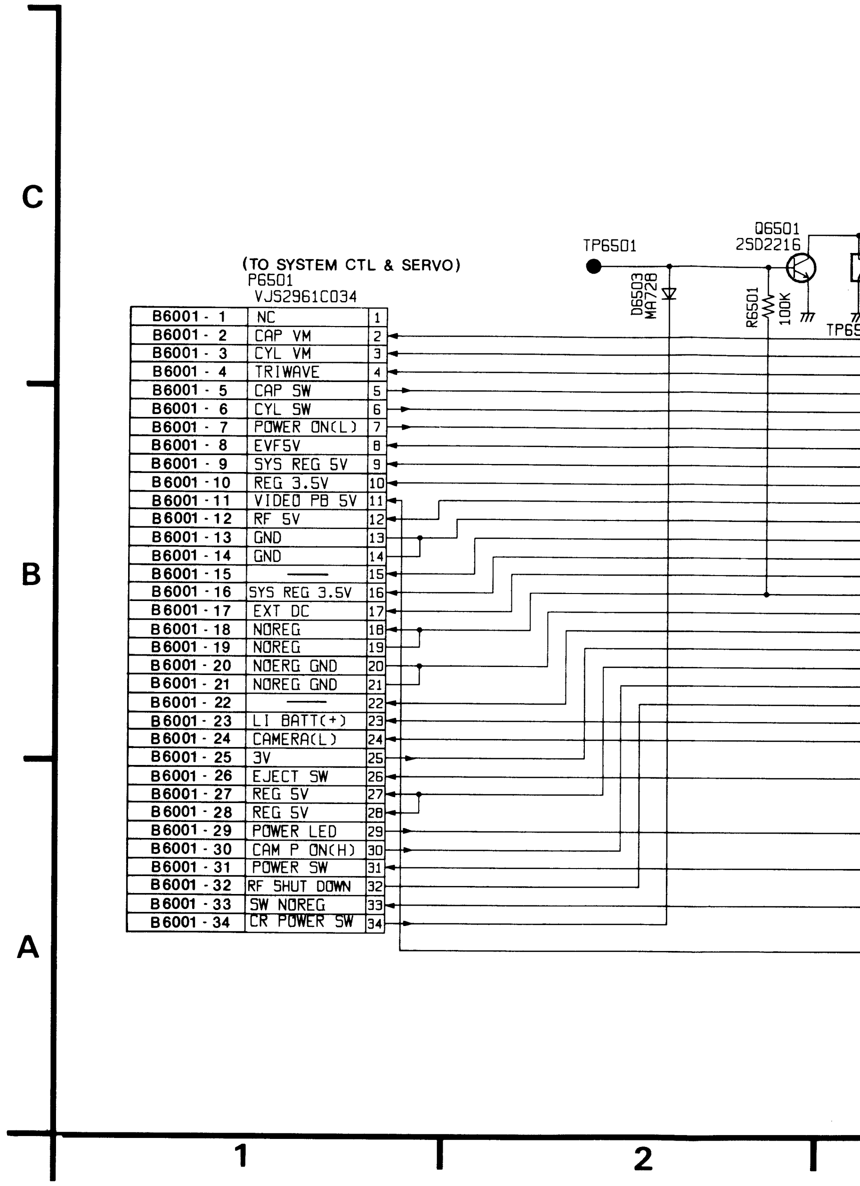


LIM
PB
S/V
GCA
HPF
LIM
LIM
HPF
V
S
S-VHS/VHS
M. LPF
S-VHS
EE
VV
VHS
NON-LINER
EMPHASIS
DE-EMPHASIS
HPF
LIM
EE
VV
DEV
VHS
S-VHS
MOD
S
VV DO
V
CLAMP
CLAMP
CLAMP
CLAMP
MIX
YNR
DL
DL
DL
S
V
630KHz
TRAP
RF
AGC
SUB
NC
YNR
PROC
42
49
55
51
50
29
31
30
35
36
37
Q3014
BUFFER
IC3002
1H DELAY
LINE
6
4
IC3003
SUB
EMPHASIS
16
9
Q3005
BUFFER
Q3010
Q3006
Q3007
S.VHS EQ
VHS EQ
Q3008
Q3009
Q3012
VR3005
YNR
Y-REC
CURRENT
VR3001
REC APC
COMPARATOR
P.B APC
COMPARATOR
CLIP
REC
PB
COMB
AMP
ACC
DET
H. P.F.
VCO
1/2
1/4 RING COUNTER
0°
90°
180°
270°
PHASE ROTATION
SUB
B.M
5.06MHz
B. P. F.
1/321
AFC PHASE
COMPARATOR
FREQUENCY
DETECTOR
AMP
REC
MAIN
B.M
630KHz
L. P. F.
REC
AMP
PB
ACC
AMP
630KHz
B. P. F.
43
41
51
47
49
Q8009
AMP
VR8001
REC C
Q8001
Q8002
BUFFER
IC8002
COMB
FILTER
4
1
S. TAB 5V
V. D. REC Ⓗ
Q500
QR5001
D. REC
5V
Q5008
IC5001
(REC/PLAY HEAD AMP)
Q3003
Q3004
Q3202
QR3002
QR3004
AMP
63
64
MIX
CURR AMP
32
30
29
27
25
26
23
21
20
18
16
17
7
8
5
10
1
60
11
12
13
14
CT SW1
CT SW2
CT SW3
CT SW4
H.SW
HEAD AMP
H.A.SW
D. REC Ⓗ
QR5002
INVERTER
REC Ⓗ / PB Ⓛ
QR5004
SWITCH
VIDEO OVL
VIDEO HEAD SW
VIDEO HEAD AMP SW
PB VIDEO VCC
CT SW
GENE
H. SW
CT SW1
CT SW2
CT SW3
CT SW4
H. A. SW
TL5002
TL5001
VR1
F
S
D1
Q5001
6
1
5
D6
VL1
F
S
D1
Q5001
3
4
2
D7
VR2
F
S
D2
Q5002
6
1
5
D9
VL2
F
S
D2
Q5002
3
4
2
D8
D5
PB 5V
Q5009

## 3-7. EVF BLOCK DIAGRAM

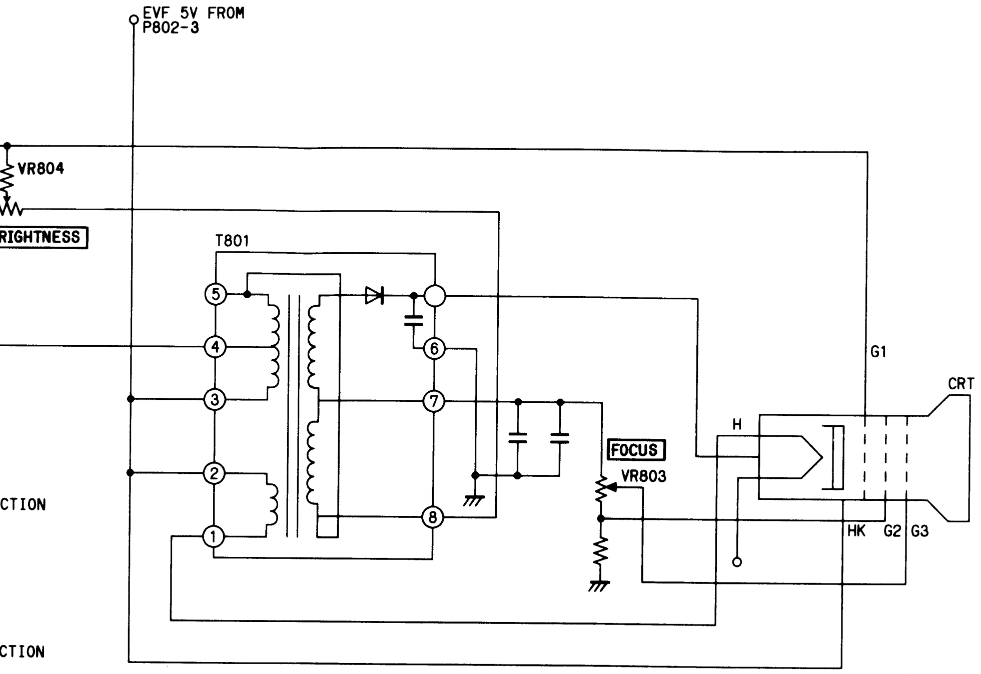

VIDEO IN
P802
2
IC801
11
AMP
MIX
13
SYNC SEPARATOR
VERTICAL SYNC SEPARATOR
VERTICAL OSC
HORIZONTAL AFC
HORIZONTAL OSC
VERTICAL DRIVE
16
5
1
3
Q803
AMP
EVF 5V FROM P802-3
VR804
BRIGHTNESS
T801
5
4
3
2
1
6
7
8
G1
CRT
H
FOCUS
VR803
HK
G2
G3
VR801
V SIZE
P801
2
P801
1
V DEFLECTION COIL
Q802
AMP
D801
P801
4
P801
3
H DEFLECTION COIL

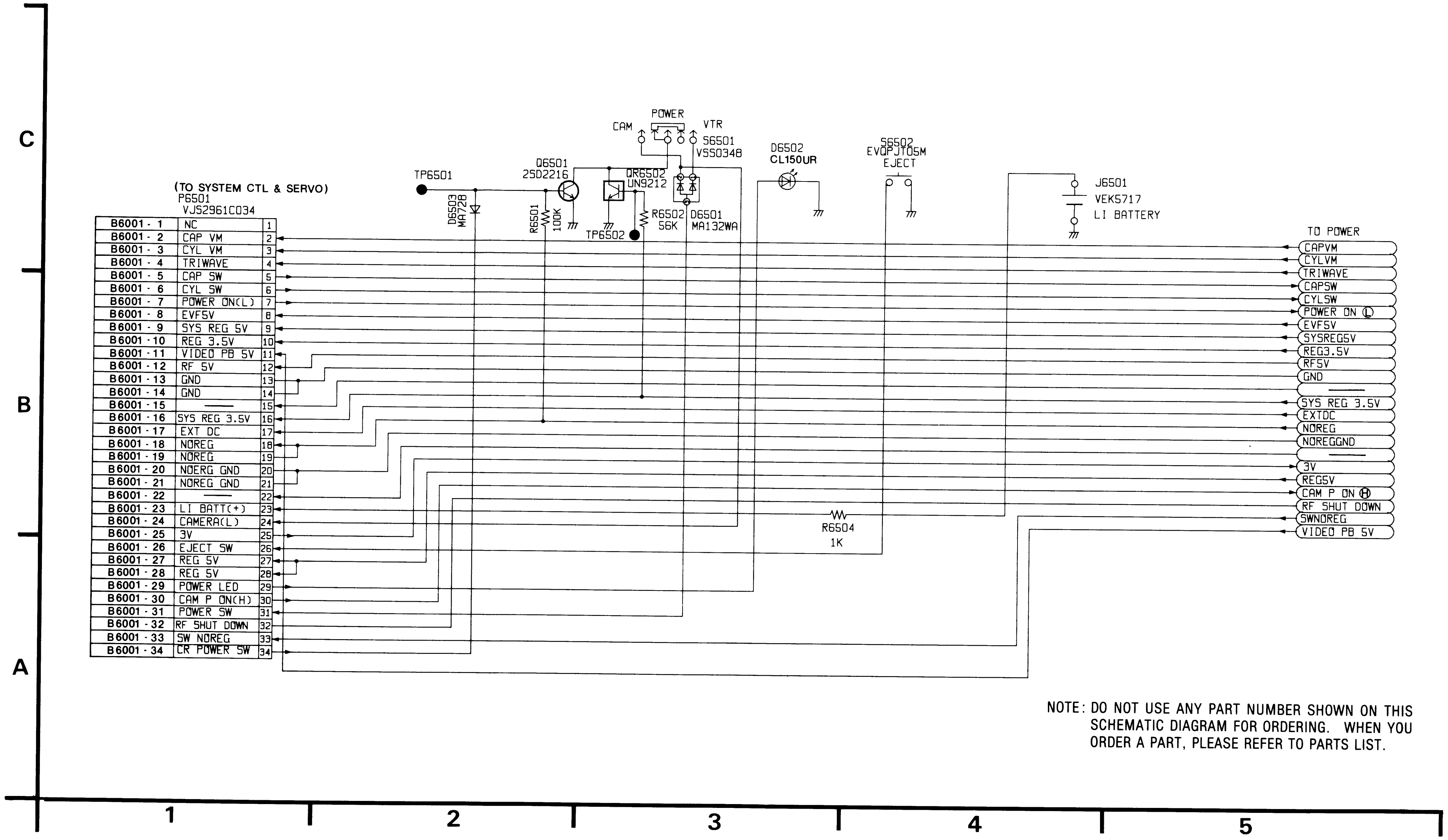
## 3-8. SUB OPERATION SCHEMATIC DIAGRA


C
B
A
1
2
(TO SYSTEM CTL & SERVO)
P6501
VJS2961C034
TP6501
D6503
MA728
R6501
100K
Q6501
2SD2216
TP65

| | | |
|---|---|---|
| B6001 - 1 | NC | 1 |
| B6001 - 2 | CAP VM | 2 |
| B6001 - 3 | CYL VM | 3 |
| B6001 - 4 | TRIWAVE | 4 |
| B6001 - 5 | CAP SW | 5 |
| B6001 - 6 | CYL SW | 6 |
| B6001 - 7 | POWER ON(L) | 7 |
| B6001 - 8 | EVF5V | 8 |
| B6001 - 9 | SYS REG 5V | 9 |
| B6001 - 10 | REG 3.5V | 10 |
| B6001 - 11 | VIDEO PB 5V | 11 |
| B6001 - 12 | RF 5V | 12 |
| B6001 - 13 | GND | 13 |
| B6001 - 14 | GND | 14 |
| B6001 - 15 | — | 15 |
| B6001 - 16 | SYS REG 3.5V | 16 |
| B6001 - 17 | EXT DC | 17 |
| B6001 - 18 | NOREG | 18 |
| B6001 - 19 | NOREG | 19 |
| B6001 - 20 | NOERG GND | 20 |
| B6001 - 21 | NOREG GND | 21 |
| B6001 - 22 | — | 22 |
| B6001 - 23 | LI BATT(+) | 23 |
| B6001 - 24 | CAMERA(L) | 24 |
| B6001 - 25 | 3V | 25 |
| B6001 - 26 | EJECT SW | 26 |
| B6001 - 27 | REG 5V | 27 |
| B6001 - 28 | REG 5V | 28 |
| B6001 - 29 | POWER LED | 29 |
| B6001 - 30 | CAM P ON(H) | 30 |
| B6001 - 31 | POWER SW | 31 |
| B6001 - 32 | RF SHUT DOWN | 32 |
| B6001 - 33 | SW NOREG | 33 |
| B6001 - 34 | CR POWER SW | 34 |

# 3-8. SUB OPERATION SCHEMATIC DIAGRAM

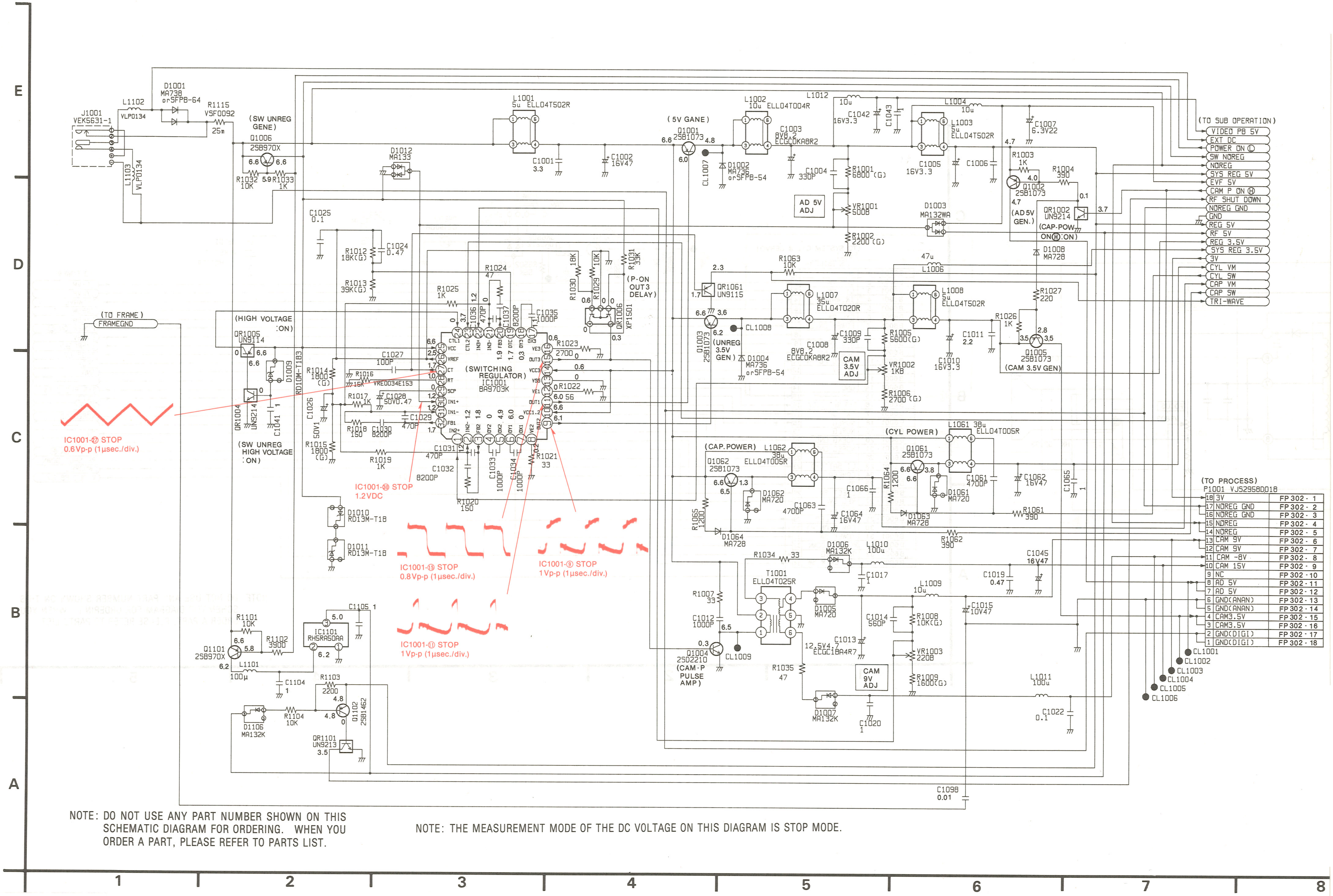

EVF 5V FROM
P802-3
VR804
RIGHTNESS
T801
G1
CRT
H
FOCUS
VR803
HK
G2
G3
CTION
CTION


C
B
A
1
2
3
4
5
(TO SYSTEM CTL & SERVO)
P6501
VJS2961C034
B6001 - 1 NC 1
B6001 - 2 CAP VM 2
B6001 - 3 CYL VM 3
B6001 - 4 TRIWAVE 4
B6001 - 5 CAP SW 5
B6001 - 6 CYL SW 6
B6001 - 7 POWER ON(L) 7
B6001 - 8 EVF5V 8
B6001 - 9 SYS REG 5V 9
B6001 - 10 REG 3.5V 10
B6001 - 11 VIDEO PB 5V 11
B6001 - 12 RF 5V 12
B6001 - 13 GND 13
B6001 - 14 GND 14
B6001 - 15 —— 15
B6001 - 16 SYS REG 3.5V 16
B6001 - 17 EXT DC 17
B6001 - 18 NOREG 18
B6001 - 19 NOREG 19
B6001 - 20 NOERG GND 20
B6001 - 21 NOREG GND 21
B6001 - 22 —— 22
B6001 - 23 LI BATT(+) 23
B6001 - 24 CAMERA(L) 24
B6001 - 25 3V 25
B6001 - 26 EJECT SW 26
B6001 - 27 REG 5V 27
B6001 - 28 REG 5V 28
B6001 - 29 POWER LED 29
B6001 - 30 CAM P ON(H) 30
B6001 - 31 POWER SW 31
B6001 - 32 RF SHUT DOWN 32
B6001 - 33 SW NOREG 33
B6001 - 34 CR POWER SW 34
TP6501
D6503
MA728
Q6501
2SD2216
R6501
100K
QR6502
UN9212
TP6502
R6502
56K
POWER
CAM
VTR
S6501
VSS0348
D6501
MA132WA
D6502
CL150UR
S6502
EVQPJT05M
EJECT
J6501
VEK5717
LI BATTERY
R6504
1K
TO POWER
CAPVM
CYLVM
TRIWAVE
CAPSW
CYLSW
POWER ON Ⓛ
EVF5V
SYSREG5V
REG3.5V
RF5V
GND
——
SYS REG 3.5V
EXTDC
NOREG
NOREGGND
——
3V
REG5V
CAM P ON Ⓗ
RF SHUT DOWN
SWNOREG
VIDEO PB 5V

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

Next Page:
POWER Section

## 3-9. POWER SCHEMATIC DIAGRAM


E
D
C
B
A
1
2
3
4
5
6
7
8
J1001 VEK5631-1
L1102 VLP0134
L1103 VLP0134
D1001 MA738 or SFPB-64
R1115 VSF0092 25m
(SW UNREG GENE)
Q1006 2SB970X
R1032 10K
R1033 1K
D1012 MA133
C1025 0.1
R1012 18K(G)
C1024 0.47
R1013 39K(G)
R1025 1K
R1024 47
L1001 5u ELL04T502R
C1001 3.3
C1002 16V47
(5V GANE)
Q1001 2SB1073
D1002 MA736 or SFPB-54
C1007
L1002 10u ELL04T004R
C1003 8V8.2 ECGC0KA8R2
C1004 330P
R1001 6800(G)
AD 5V ADJ
VR1001 500B
R1002 2200(G)
L1012 10u
C1042 16V3.3
C1043
L1004 10u
L1003 5u ELL04T502R
C1005 16V3.3
C1006
C1007 6.3V22
R1003 1K
Q1002 2SB1073
R1004 390
(AD 5V GEN.)
D1003 MA132WA
QR1002 UN9214
(CAP-POW ON Ⓗ:ON)
D1008 MA728
(TO SUB OPERATION)
VIDEO PB 5V
EXT DC
POWER ON Ⓛ
SW NOREG
NOREG
SYS REG 5V
EVF 5V
CAM P ON Ⓗ
RF SHUT DOWN
NOREG GND
GND
REG 5V
RF 5V
REG 3.5V
SYS REG 3.5V
3V
CYL VM
CYL SW
CAP VM
CAP SW
TRI-WAVE
(TO FRAME) FRAMEGND
(HIGH VOLTAGE :ON)
QR1005 UN9214
D1009 RD10M-T1B
R1014 1800(G)
R1016 15K
VRE0034E153
R1017 1K
C1028 50V0.47
C1027 100P
C1026 50V1
QR1004 UN9214
C1041 1
(SW UNREG HIGH VOLTAGE :ON)
R1015 1800(G)
R1018 150
C1030 8200P
C1029 470P
R1019 1K
C1031 470P
C1032 8200P
R1020 150
C1033 1000P
C1034 1000P
R1021 33
C1036 1.2
470P
R1037 8200P
C1035 1000P
R1023 2700
R1022
R1030 18K
R1029 10K
R1031 33K
QR1006 XP1501
(P-ON OUT3 DELAY)
(SWITCHING REGULATOR) IC1001 BA9703K
VCC VREF CT RT SCP IN1+ IN1- FB1 IN2+ IN2- FB2 DY2 DX2 DY1 DX1 VE2 OUT2 VCC1.2 OUT1 VE1 VSS VCC3 OUT3 VE3 DX3 DY3 DTC FB3 IN3- IN3+ CTL2 CTL1
D1010 RD13M-T1B
D1011 RD13M-T1B
R1101 10K
Q1101 2SB970X
R1102 3900
IC1101 RH5RA50AA
C1105 1
L1101 100μ
C1104 1
R1103 2200
Q1102 2SB1462
R1104 10K
D1106 MA132K
QR1101 UN9213
R1063 10K
QR1051 UN9115
Q1003 2SB1073
CL1008
(UNREG 3.5V GEN)
D1004 MA736 or SFPB-54
L1007 35u ELL04T020R
C1009 330P
C1008 8V8.2 ECGC0KA8R2
R1005 5600(G)
CAM 3.5V ADJ
VR1002 1KB
R1006 2700(G)
L1006 47u
L1008 5u ELL04T502R
C1011 2.2
C1010 16V3.3
R1026 1K
R1027 220
Q1005 2SB1073
(CAM 3.5V GEN)
(CYL POWER)
L1061 38u ELL04T005R
Q1061 2SB1073
C1061 4700P
D1061 MA720
C1062 16V47
R1064 1200
D1063 MA728
R1061 390
R1062 390
C1065 1
(CAP.POWER)
L1062 38u ELL04T005R
Q1062 2SB1073
D1062 MA720
C1063 4700P
C1066 1
C1064 16V47
R1065 1200
D1064 MA728
R1034 33
D1006 MA132K
L1010 100u
C1017 1
C1045 16V47
C1019 0.47
T1001 ELL04T025R
R1007 33
C1012 1000P
D1005 MA720
L1009 10u
C1015 10V47
C1014 560P
R1008 10K(G)
C1013 12.5V4.7 ECGC1BA4R7
VR1003 220B
R1009 1800(G)
CAM 9V ADJ
Q1004 2SD2210 (CAM-P PULSE AMP)
CL1009
R1035 47
D1007 MA132K
C1020 1
L1011 100u
C1022 0.1
C1098 0.01
(TO PROCESS)
P1001 VJS2958D018
18 3V FP302 - 1
17 NOREG GND FP302 - 2
16 NOREG GND FP302 - 3
15 NOREG FP302 - 4
14 NOREG FP302 - 5
13 CAM 9V FP302 - 6
12 CAM 9V FP302 - 7
11 CAM -8V FP302 - 8
10 CAM 15V FP302 - 9
9 NC FP302 - 10
8 AD 5V FP302 - 11
7 AD 5V FP302 - 12
6 GND(ANAN) FP302 - 13
5 GND(ANAN) FP302 - 14
4 CAM3.5V FP302 - 15
3 CAM3.5V FP302 - 16
2 GND(DIGI) FP302 - 17
1 GND(DIGI) FP302 - 18
CL1001
CL1002
CL1003
CL1004
CL1005
CL1006
IC1001-㉗ STOP 0.6Vp-p (1μsec./div.)
IC1001-㉚ STOP 1.2VDC
IC1001-⑮ STOP 0.8Vp-p (1μsec./div.)
IC1001-⑨ STOP 1Vp-p (1μsec./div.)
IC1001-⑪ STOP 1Vp-p (1μsec./div.)

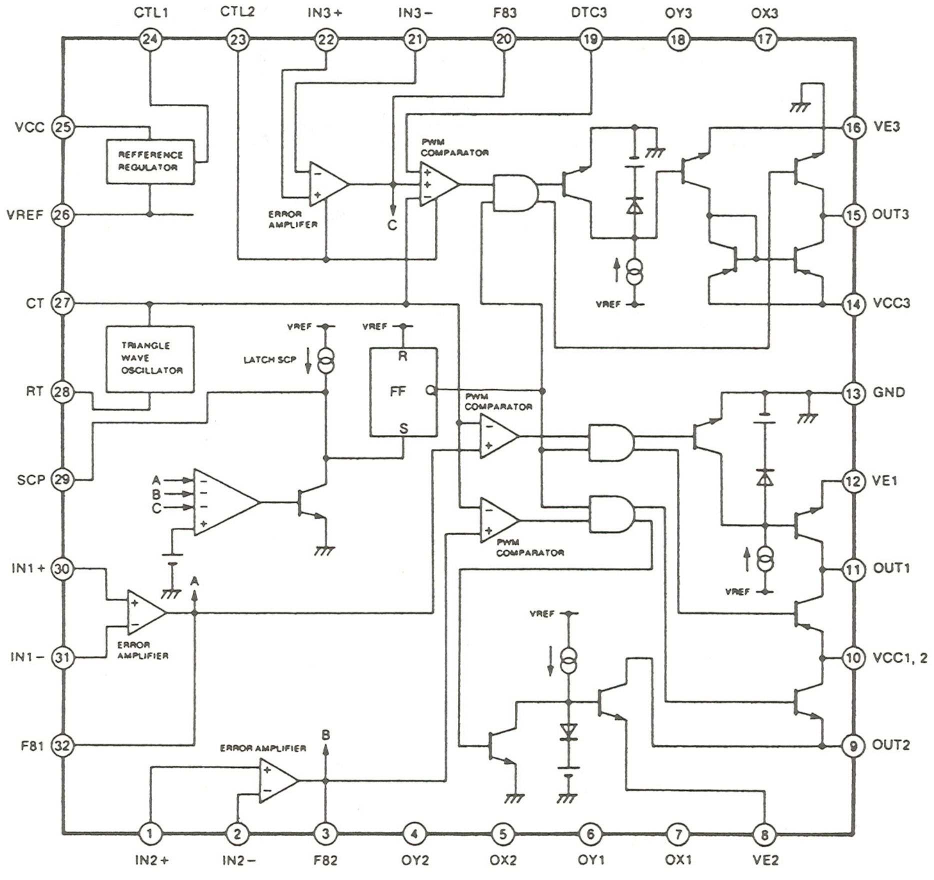
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

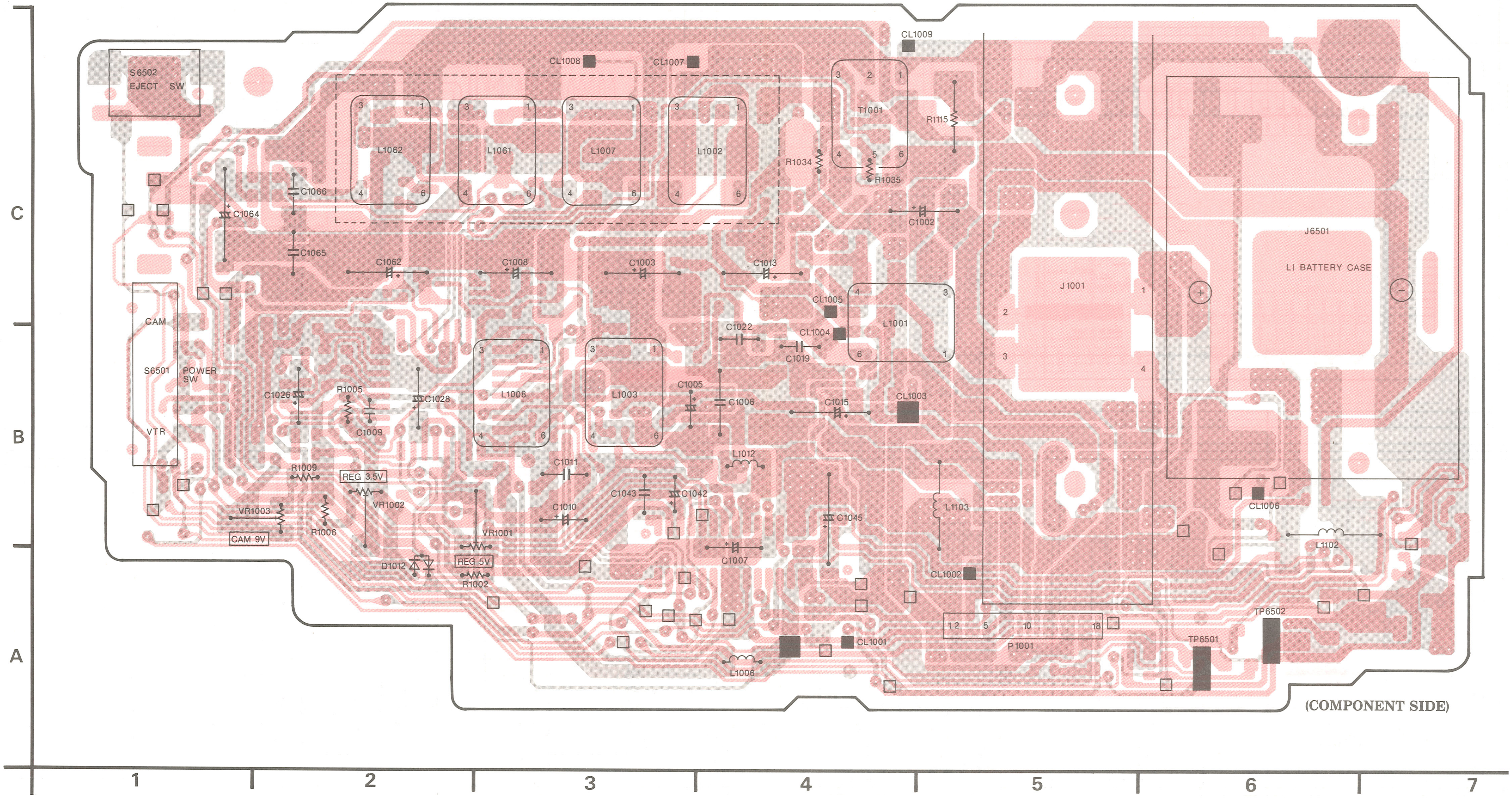
| POWER & SUB OPERATION C.B.A. | |
|---|---|
| **Transistor** | |
| Q1001 | C-11 Ⓕ |
| Q1002 | B-10 Ⓕ |
| Q1003 | C-11 Ⓕ |
| Q1004 | C-10 Ⓕ |
| Q1005 | B-10 Ⓕ |
| Q1006 | A-8 Ⓕ |
| Q1061 | C-12 Ⓕ |
| Q1062 | C-12 Ⓕ |
| Q1101 | A-9 Ⓕ |
| Q1102 | B-8 Ⓕ |
| Q6501 | B-13 Ⓕ |
| **Transistor & Resistor** | |
| QR1002 | B-11 Ⓕ |
| QR1004 | B-11 Ⓕ |
| QR1005 | B-12 Ⓕ |
| QR1006 | C-12 Ⓕ |
| QR1061 | B-12 Ⓕ |
| QR1101 | B-8 Ⓕ |
| QR6502 | B-13 Ⓕ |
| **Integrated Circuit** | |
| IC1001 | B-12 Ⓕ |
| IC1101 | A-8 Ⓕ |
| **Test Point** | |
| CL1001 | A-4 Ⓒ |
| CL1002 | A-5 Ⓒ |
| CL1003 | B-4 Ⓒ |
| CL1004 | B-4 Ⓒ |
| CL1005 | C-4 Ⓒ |
| CL1006 | B-6 Ⓒ |
| CL1007 | C-3 Ⓒ |
| CL1008 | C-3 Ⓒ |
| CL1009 | C-3 Ⓒ |
| TP6501 | A-6 Ⓒ |
| TP6502 | A-6 Ⓒ |
| **Adjustment** | |
| VR1001 | B-3 Ⓒ |
| VR1002 | B-2 Ⓒ |
| VR1003 | B-2 Ⓒ |
| **Connector** | |
| P1001 | A-5 Ⓒ |
| P6501 | B-11 Ⓒ |

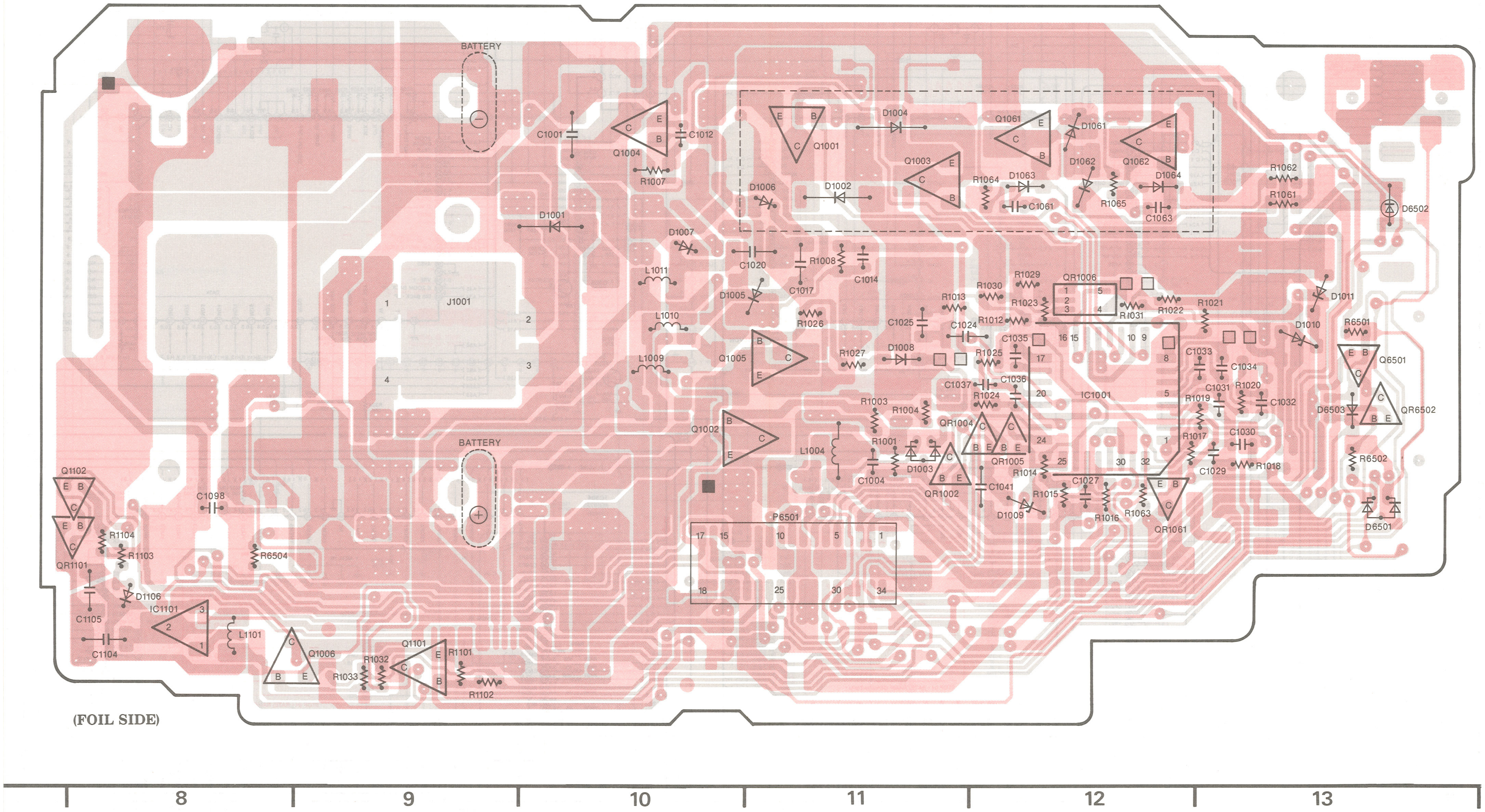
ADDRESS INFORMATION
Ⓒ...COMPONENT SIDE
Ⓕ...FOIL SIDE

IC1001 (BA9703K)


CTL1
CTL2
IN3+
IN3−
F83
DTC3
OY3
OX3
24
23
22
21
20
19
18
17
VCC 25
VREF 26
CT 27
RT 28
SCP 29
IN1+ 30
IN1− 31
F81 32
16 VE3
15 OUT3
14 VCC3
13 GND
12 VE1
11 OUT1
10 VCC1, 2
9 OUT2
1
2
3
4
5
6
7
8
IN2+
IN2−
F82
OY2
OX2
OY1
OX1
VE2
REFFERENCE REGULATOR
ERROR AMPLIFER
C
PWM COMPARATOR
VREF
TRIANGLE WAVE OSCILLATOR
VREF
LATCH SCP
VREF
R
FF
Q
S
PWM COMPARATOR
A
B
C
PWM COMPARATOR
VREF
A
ERROR AMPLIFIER
ERROR AMPLIFIER
B
VREF

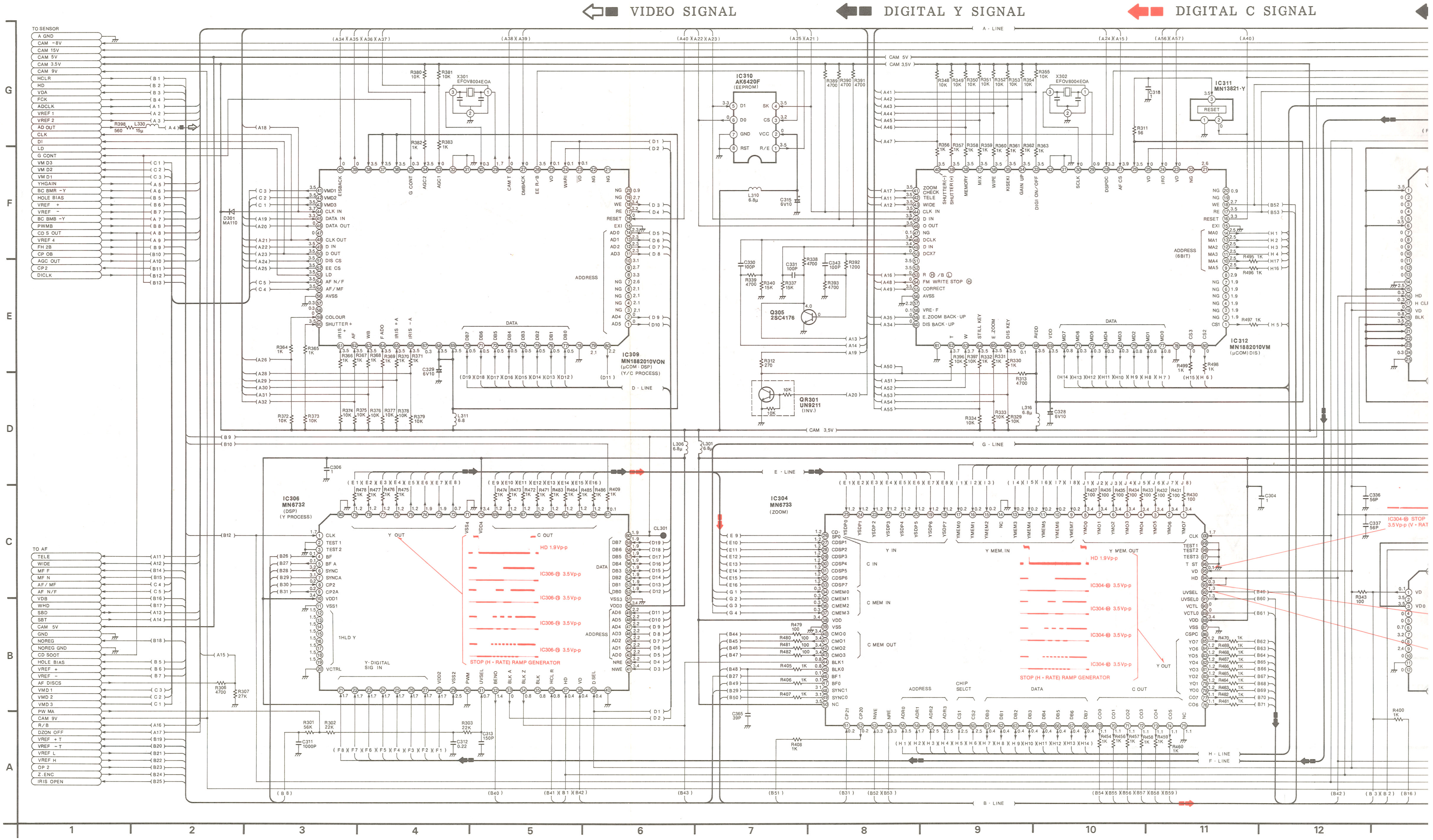
## 3-10. POWER & SUB OPERATION C.B.A. (VEP01508A)


S6502
EJECT SW
CL1008
CL1007
CL1009
L1062
L1061
L1007
L1002
T1001
R1115
R1034
R1035
C1066
C1064
C1065
C1062
C1008
C1003
C1013
C1002
J1001
J6501
LI BATTERY CASE
CL1005
CL1004
C1022
C1019
L1001
CAM
S6501
POWER SW
VTR
C1026
R1005
C1009
C1028
L1008
L1003
C1005
C1006
C1015
CL1003
C1011
L1012
R1009
REG 3.5V
VR1002
VR1003
R1006
CAM 9V
C1043
C1042
C1010
C1045
L1103
CL1006
L1102
VR1001
D1012
REG 5V
R1002
C1007
CL1002
P1001
CL1001
L1006
TP6502
TP6501
(COMPONENT SIDE)
C
B
A
1
2
3
4
5
6
7

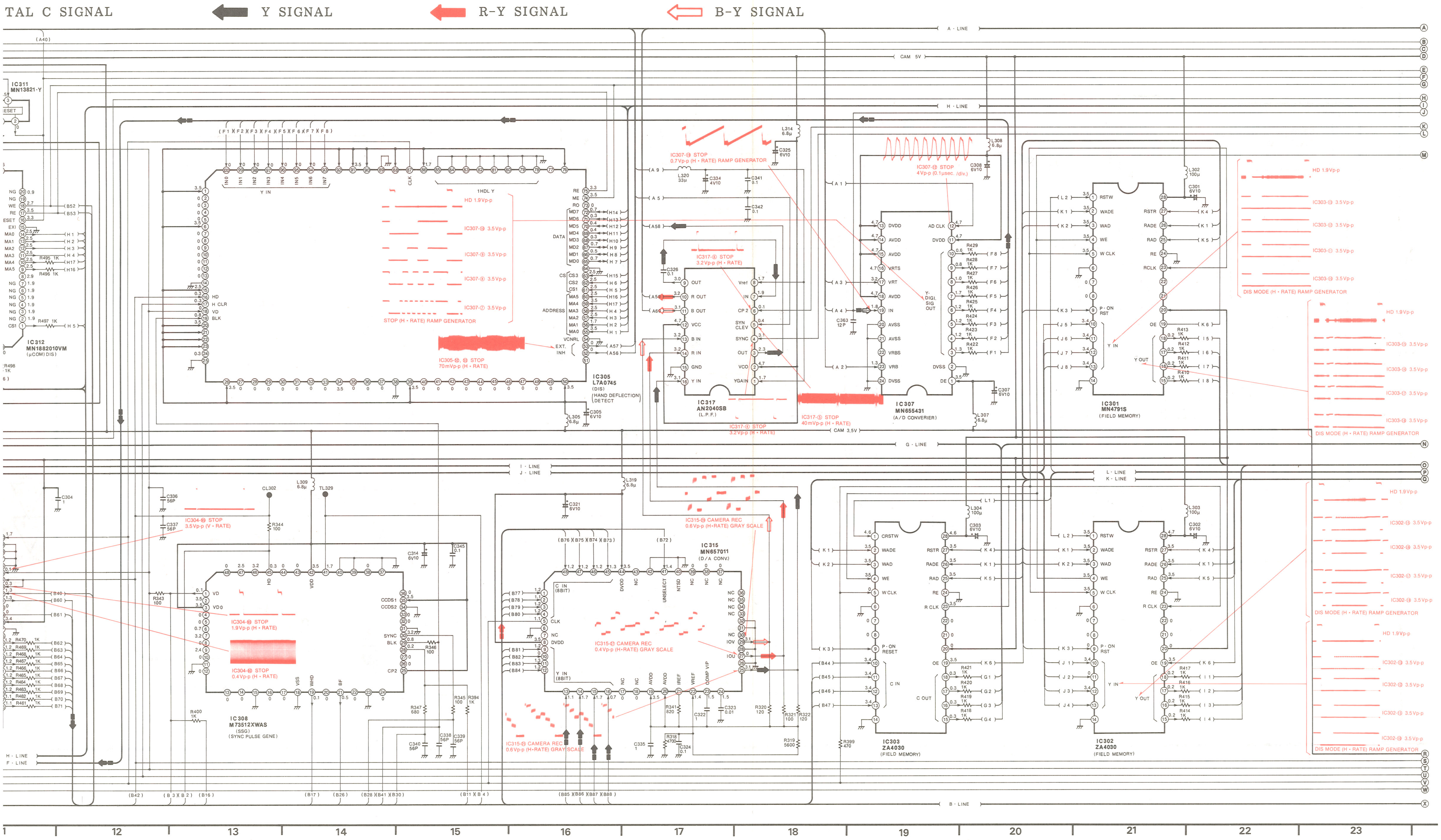

BATTERY
BATTERY
J1001
C1001
Q1004
C1012
R1007
D1001
D1004
Q1001
Q1061
D1061
Q1003
D1062
Q1062
R1064
D1063
D1064
D1006
D1002
C1061
R1065
C1063
R1062
R1061
D6502
D1007
C1020
R1008
C1017
C1014
L1011
D1005
R1026
L1010
L1009
Q1005
Q1002
R1029
R1030
QR1006
R1013
R1023
R1031
R1022
R1021
C1025
C1024
R1012
C1035
D1011
D1010
R6501
Q6501
R1027
D1008
R1025
C1033
C1034
C1037
C1036
R1024
IC1001
C1031
R1020
R1019
C1032
D6503
QR6502
R1003
R1004
QR1004
L1004
R1001
D1003
QR1005
R1014
R1017
C1030
C1029
R1018
R6502
C1004
QR1002
C1041
C1027
R1015
R1016
R1063
D1009
QR1061
D6501
P6501
Q1102
QR1101
R1104
R1103
C1098
R6504
D1106
C1105
IC1101
L1101
C1104
Q1006
Q1101
R1032
R1033
R1101
R1102
8
9
10
11
12
13

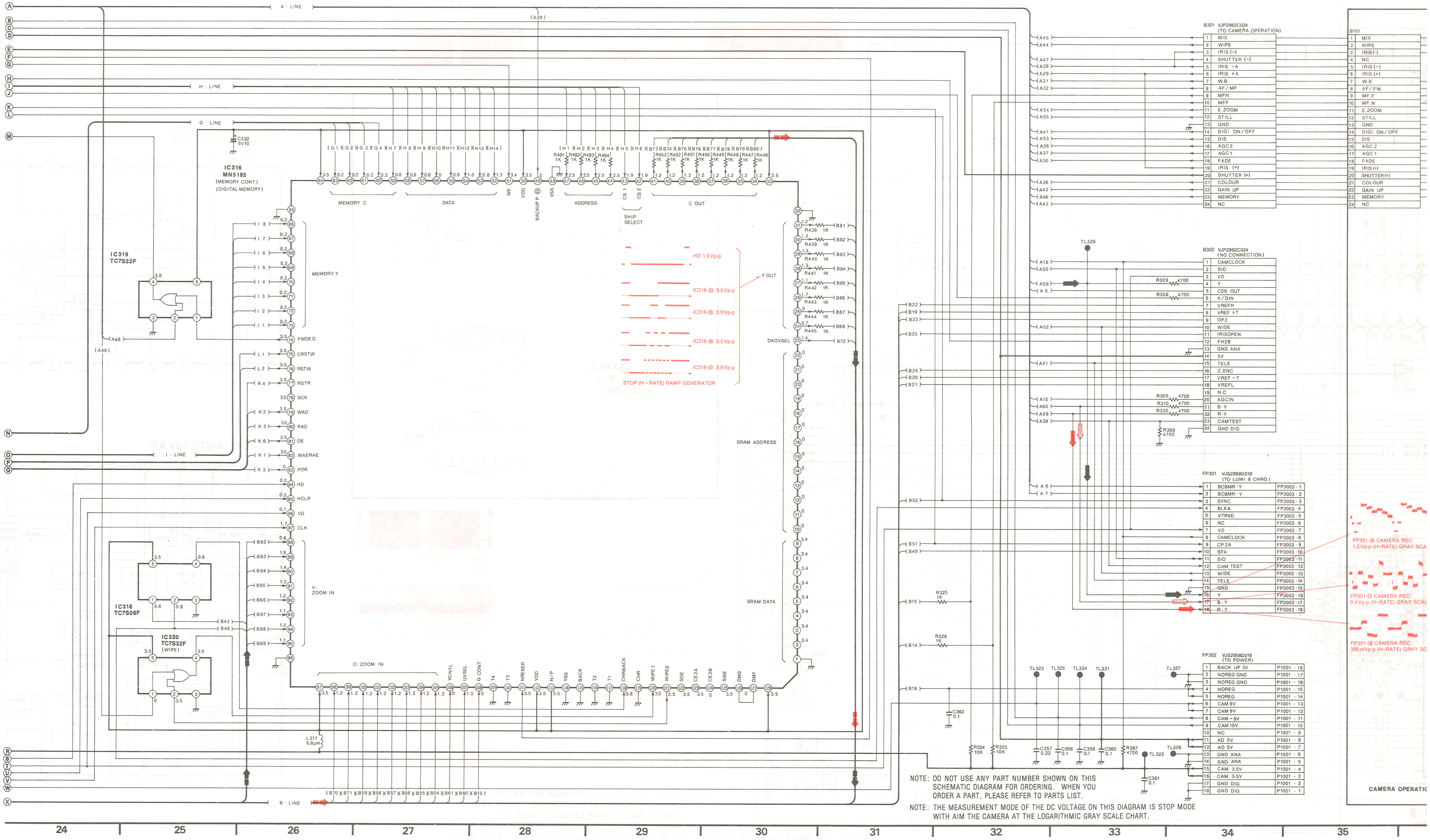
(FOIL SIDE)

# 3-11. PROCESS SCHEMATIC DIAGRAM


VIDEO SIGNAL
DIGITAL Y SIGNAL
DIGITAL C SIGNAL
TO SENSOR
TO AF
IC310 AK6420F (EEPROM)
IC311 MN13821-Y
IC309 MN1882010VON (μCOM : DSP) (Y/C PROCESS)
IC312 MN1882010VM (μCOM) DIS)
IC306 MN6732 (DSP) (Y PROCESS)
IC304 MN6733 (ZOOM)
Q305 2SC4176
QR301 UN9211 (INV.)
X301 EFOV8004EOA
X302 EFOV8004EOA
A - LINE
B - LINE
D - LINE
E - LINE
G - LINE
H - LINE
F - LINE
CAM 5V
CAM 3.5V
HD 1.9Vp-p
IC306-⑩ 3.5Vp-p
STOP (H - RATE) RAMP GENERATOR
IC304-⑩ 3.5Vp-p
IC304-⑩ STOP 3.5Vp-p (V · RAT
Y OUT
C OUT
Y MEM. OUT
1 2 3 4 5 6 7 8 9 10 11 12
A B C D E F G

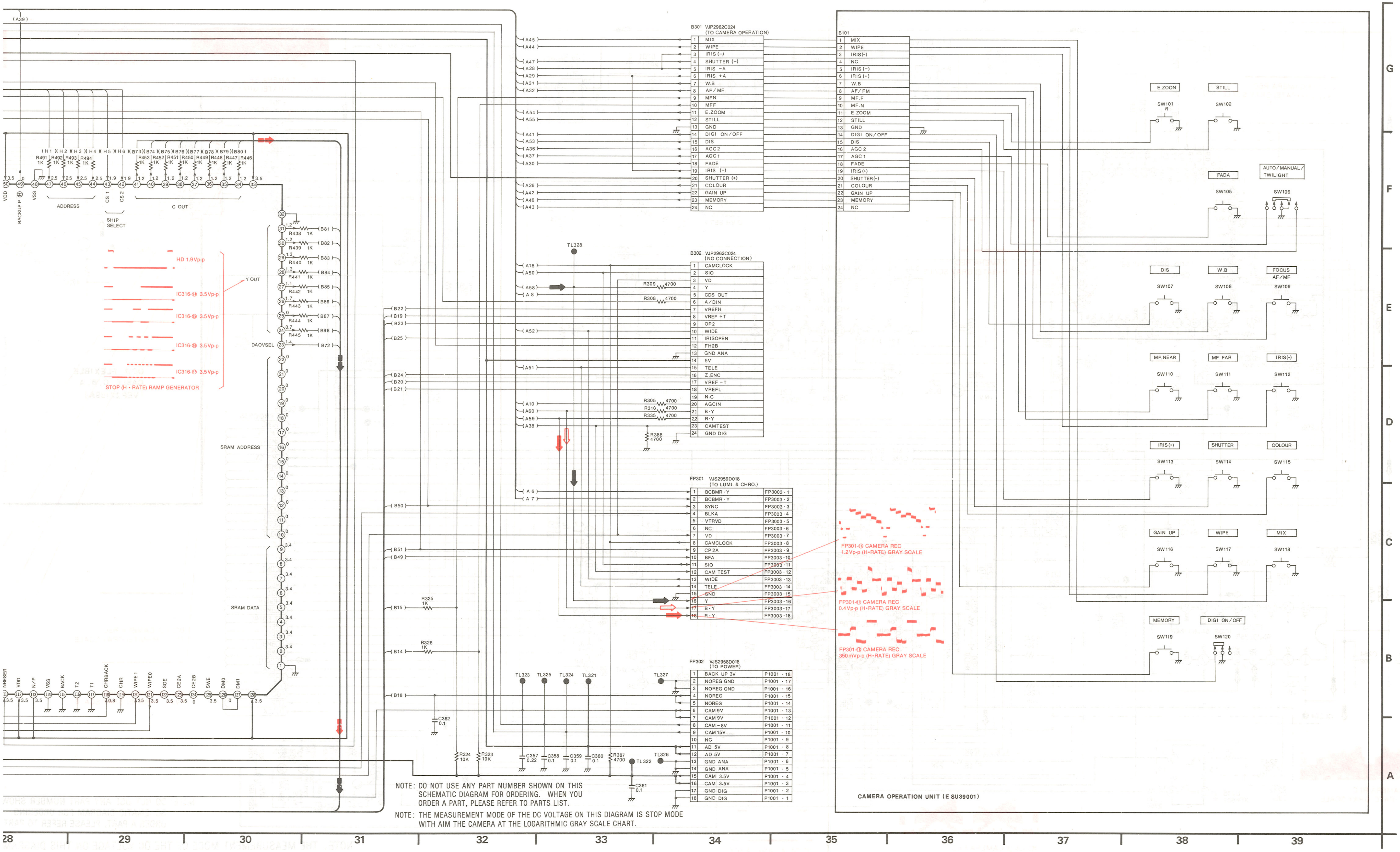
Back Page:
POWER & SUB OPERATION Section


TAL C SIGNAL
Y SIGNAL
R-Y SIGNAL
B-Y SIGNAL
A - LINE
CAM 5V
H - LINE
G - LINE
I - LINE
J - LINE
L - LINE
K - LINE
B - LINE
CAM 3.5V
H - LINE
F - LINE
IC311
MN13821-Y
IC312
MN1882010VM
(μCOM) DIS)
IC305
L7A0745
(DIS)
(HAND DEFLECTION DETECT)
IC307-⑬ STOP
0.7Vp-p (H • RATE) RAMP GENERATOR
IC307-⑬ STOP
4Vp-p (0.1μsec. /div.)
HD 1.9Vp-p
IC307-⑮ 3.5Vp-p
IC307-⑭ 3.5Vp-p
IC307-⑧ 3.5Vp-p
IC307-⑦ 3.5Vp-p
STOP (H • RATE) RAMP GENERATOR
IC305-㊿, ㊿ STOP
70mVp-p (H • RATE)
IC317-⑥ STOP
3.2Vp-p (H • RATE)
IC317
AN2040SB
(L.P.F.)
IC317-⑤ STOP
40mVp-p (H • RATE)
IC317-⑩ STOP
3.2Vp-p (H • RATE)
IC307
MN655431
(A/D CONVERTER)
IC301
MN4791S
(FIELD MEMORY)
IC303-⑭ 3.5Vp-p
IC303-⑮ 3.5Vp-p
IC303-① 3.5Vp-p
IC303-⑫ 3.5Vp-p
DIS MODE (H • RATE) RAMP GENERATOR
IC304-⑭ STOP
3.5Vp-p (V • RATE)
IC304-⑭ STOP
1.9Vp-p (H • RATE)
IC304-⑭ STOP
0.4Vp-p (H • RATE)
IC308
M73512XWAS
(SSG)
(SYNC PULSE GENE)
IC315-⑭ CAMERA REC
0.6Vp-p (H•RATE) GRAY SCALE
IC315-㉗ CAMERA REC
0.4Vp-p (H•RATE) GRAY SCALE
IC315-㉘ CAMERA REC
0.6Vp-p (H•RATE) GRAY SCALE
IC315
MN657011
(D/A CONV)
IC303
ZA4030
(FIELD MEMORY)
IC302
ZA4030
(FIELD MEMORY)
IC302-⑭ 3.5Vp-p
IC302-⑮ 3.5Vp-p
IC302-⑫ 3.5Vp-p
IC302-① 3.5Vp-p
12
13
14
15
16
17
18
19
20
21
22
23


A - LINE
H - LINE
G - LINE
I - LINE
B - LINE
IC316
MN5185
(MEMORY CONT)
(DIGITAL MEMORY)
IC319
TC7S32F
IC318
TC7S08F
IC320
TC7S32F
(WIPE)
MEMORY C
DATA
ADDRESS
SHIP SELECT
C OUT
MEMORY Y
FMDEO
CRSTW
RSTW
RSTR
SCK
WAD
RAD
OE
WAERAE
POR
HD
HCLR
VD
CLK
Y-ZOOM IN
C-ZOOM IN
Y OUT
DAOVSEL
SRAM ADDRESS
SRAM DATA
HD 1.9Vp-p
IC316-㊽ 3.5Vp-p
IC316-㊺ 3.5Vp-p
IC316-㊹ 3.5Vp-p
IC316-㊸ 3.5Vp-p
STOP (H - RATE) RAMP GENERATOR
C332 6V10
L317 6.8μH
TL328
B301 VJP2962C024
(TO CAMERA OPERATION)
1 MIX
2 WIPE
3 IRIS (−)
4 SHUTTER (−)
5 IRIS −A
6 IRIS +A
7 W.B
8 AF/MF
9 MFN
10 MFF
11 E.ZOOM
12 STILL
13 GND
14 DIGI ON/OFF
15 DIS
16 AGC2
17 AGC1
18 FADE
19 IRIS (+)
20 SHUTTER (+)
21 COLOUR
22 GAIN UP
23 MEMORY
24 NC
B101
1 MIX
2 WIPE
3 IRIS(−)
4 NC
5 IRIS (−)
6 IRIS (+)
7 W.B
8 AF/FM
9 MF.F
10 MF.N
11 E.ZOOM
12 STILL
13 GND
14 DIGI ON/OFF
15 DIS
16 AGC 2
17 AGC 1
18 FADE
19 IRIS (+)
20 SHUTTER(+)
21 COLOUR
22 GAIN UP
23 MEMORY
24 NC
B302 VJP2962C024
(NO CONNECTION)
1 CAMCLOCK
2 SIO
3 VD
4 Y
5 CDS OUT
6 A/DIN
7 VREFH
8 VREF +T
9 OP2
10 WIDE
11 IRISOPEN
12 FH2B
13 GND ANA
14 5V
15 TELE
16 Z.ENC
17 VREF +T
18 VREFL
19 N.C
20 AGCIN
21 B-Y
22 R-Y
23 CAMTEST
24 GND DIG
R309 4700
R308 4700
R305 4700
R310 4700
R335 4700
R388 4700
FP301 VJS2959D018
(TO LUMI. & CHRO.)
1 BCBMR-Y FP3003-1
2 BCBMR-Y FP3003-2
3 SYNC FP3003-3
4 BLKA FP3003-4
5 VTRVD FP3003-5
6 NC FP3003-6
7 VD FP3003-7
8 CAMCLOCK FP3003-8
9 CP2A FP3003-9
10 BFA FP3003-10
11 SIO FP3003-11
12 CAM TEST FP3003-12
13 WIDE FP3003-13
14 TELE FP3003-14
15 GND FP3003-15
16 Y FP3003-16
17 B-Y FP3003-17
18 R-Y FP3003-18
FP301-⑯ CAMERA REC 1.2Vp-p (H-RATE) GRAY SCA
FP301-⑰ CAMERA REC 0.4Vp-p (H-RATE) GRAY SCAL
FP301-⑱ CAMERA REC 350mVp-p (H-RATE) GRAY SC
FP302 VJS2958D018
(TO POWER)
1 BACK UP 3V P1001-18
2 NOREG GND P1001-17
3 NOREG GND P1001-16
4 NOREG P1001-15
5 NOREG P1001-14
6 CAM 9V P1001-13
7 CAM 9V P1001-12
8 CAM −8V P1001-11
9 CAM 15V P1001-10
10 NC P1001-9
11 AD 5V P1001-8
12 AD 5V P1001-7
13 GND ANA P1001-6
14 GND ANA P1001-5
15 CAM 3.5V P1001-4
16 CAM 3.5V P1001-3
17 GND DIG P1001-2
18 GND DIG P1001-1
TL323 TL325 TL324 TL321 TL327 TL326 TL322
R325 1K
R326 1K
C362 0.1
R324 10K
R323 10K
C357 0.22
C358 0.1
C359 0.1
C360 0.1
R387 4700
C361 0.1
CAMERA OPERATIO
24
25
26
27
28
29
30
31
32
33
34
35

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

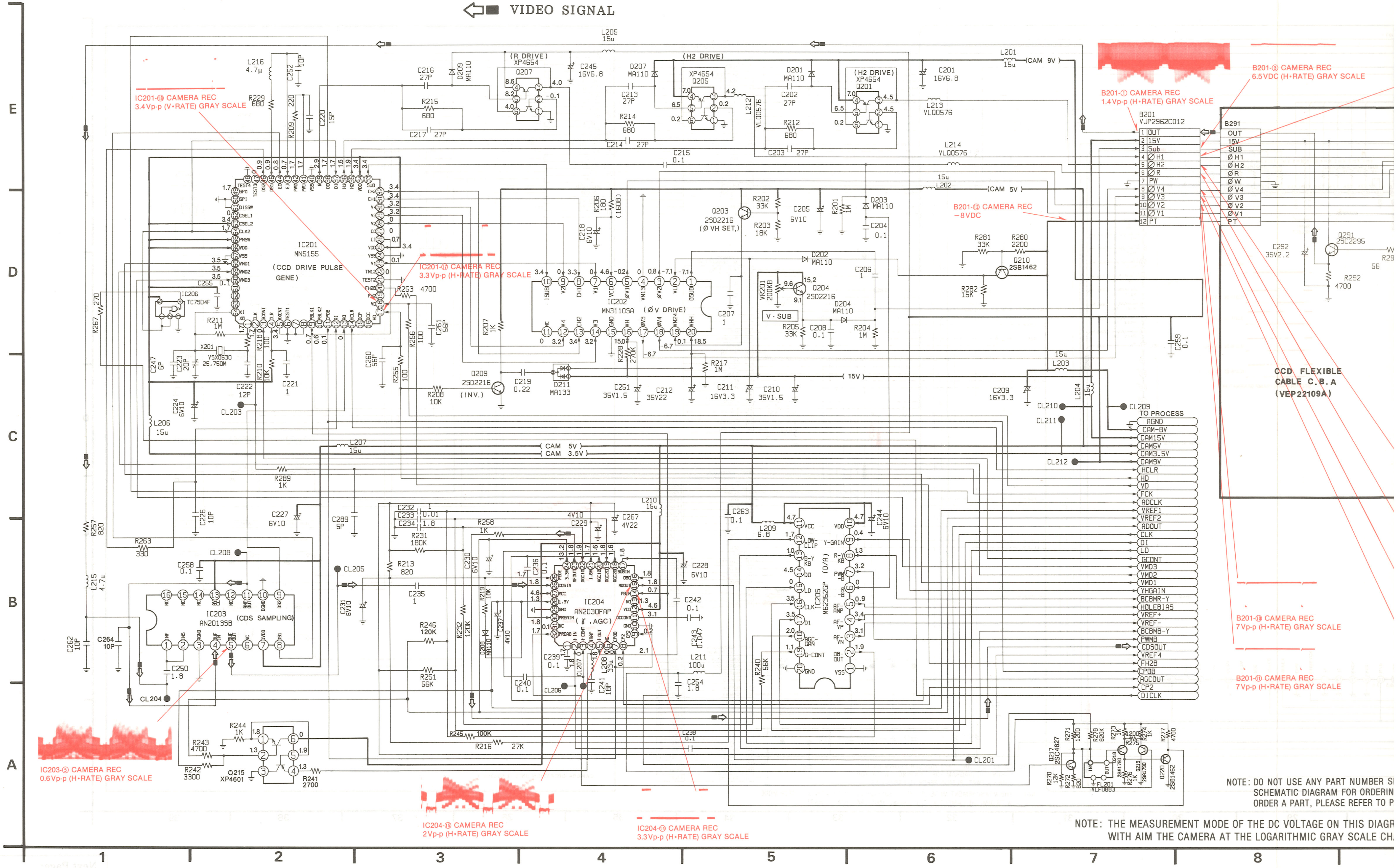

(A39)
B301 VJP2962C024 (TO CAMERA OPERATION)
1 MIX
2 WIPE
3 IRIS (−)
4 SHUTTER (−)
5 IRIS −A
6 IRIS +A
7 W.B
8 AF / MF
9 MFN
10 MFF
11 E.ZOOM
12 STILL
13 GND
14 DIGI ON / OFF
15 DIS
16 AGC2
17 AGC1
18 FADE
19 IRIS (+)
20 SHUTTER (+)
21 COLOUR
22 GAIN UP
23 MEMORY
24 NC
B101
1 MIX
2 WIPE
3 IRIS(−)
4 NC
5 IRIS (−)
6 IRIS (+)
7 W.B
8 AF / FM
9 MF.F
10 MF.N
11 E.ZOOM
12 STILL
13 GND
14 DIGI ON / OFF
15 DIS
16 AGC 2
17 AGC 1
18 FADE
19 IRIS (+)
20 SHUTTER(+)
21 COLOUR
22 GAIN UP
23 MEMORY
24 NC
B302 VJP2962C024 (NO CONNECTION)
1 CAMCLOCK
2 SIO
3 VD
4 Y
5 CDS OUT
6 A / DIN
7 VREFH
8 VREF +T
9 OP2
10 WIDE
11 IRISOPEN
12 FH2B
13 GND ANA
14 5V
15 TELE
16 Z.ENC
17 VREF −T
18 VREFL
19 N.C
20 AGCIN
21 B-Y
22 R-Y
23 CAMTEST
24 GND DIG
FP301 VJS2959D018 (TO LUMI. & CHRO.)
1 BCBMR - Y FP3003 - 1
2 BCBMR - Y FP3003 - 2
3 SYNC FP3003 - 3
4 BLKA FP3003 - 4
5 VTRVD FP3003 - 5
6 NC FP3003 - 6
7 VD FP3003 - 7
8 CAMCLOCK FP3003 - 8
9 CP 2A FP3003 - 9
10 BFA FP3003 - 10
11 SIO FP3003 - 11
12 CAM TEST FP3003 - 12
13 WIDE FP3003 - 13
14 TELE FP3003 - 14
15 GND FP3003 - 15
16 Y FP3003 - 16
17 B - Y FP3003 - 17
18 R - Y FP3003 - 18
FP302 VJS2958D018 (TO POWER)
1 BACK UP 3V P1001 - 18
2 NOREG GND P1001 - 17
3 NOREG GND P1001 - 16
4 NOREG P1001 - 15
5 NOREG P1001 - 14
6 CAM 9V P1001 - 13
7 CAM 9V P1001 - 12
8 CAM −8V P1001 - 11
9 CAM 15V P1001 - 10
10 NC P1001 - 9
11 AD 5V P1001 - 8
12 AD 5V P1001 - 7
13 GND ANA P1001 - 6
14 GND ANA P1001 - 5
15 CAM 3.5V P1001 - 4
16 CAM 3.5V P1001 - 3
17 GND DIG P1001 - 2
18 GND DIG P1001 - 1
E.ZOOM SW101
STILL SW102
FADA SW105
AUTO / MANUAL / TWILIGHT SW106
DIS SW107
W.B SW108
FOCUS AF / MF SW109
MF.NEAR SW110
MF FAR SW111
IRIS(−) SW112
IRIS(+) SW113
SHUTTER SW114
COLOUR SW115
GAIN UP SW116
WIPE SW117
MIX SW118
MEMORY SW119
DIGI ON / OFF SW120
CAMERA OPERATION UNIT (E SU39001)
HD 1.9Vp-p
Y OUT
IC316-㉘ 3.5Vp-p
IC316-㉙ 3.5Vp-p
IC316-㉚ 3.5Vp-p
IC316-㉛ 3.5Vp-p
STOP (H • RATE) RAMP GENERATOR
FP301-⑯ CAMERA REC 1.2Vp-p (H•RATE) GRAY SCALE
FP301-⑰ CAMERA REC 0.4Vp-p (H•RATE) GRAY SCALE
FP301-⑱ CAMERA REC 350mVp-p (H•RATE) GRAY SCALE
ADDRESS
CS 1
CS 2
SHIP SELECT
C OUT
DAOVSEL
SRAM ADDRESS
SRAM DATA
VDD
BACKUP P
VSS
TL328
TL323
TL325
TL324
TL321
TL327
TL326
TL322
R309 4700
R308 4700
R305 4700
R310 4700
R335 4700
R388 4700
R325 1K
R326 1K
R324 10K
R323 10K
C357 0.22
C358 0.1
C359 0.1
C360 0.1
R387 4700
C361 0.1
C362 0.1
28
29
30
31
32
33
34
35
36
37
38
39
G
F
E
D
C
B
A

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

Next Page:
SENSOR Section

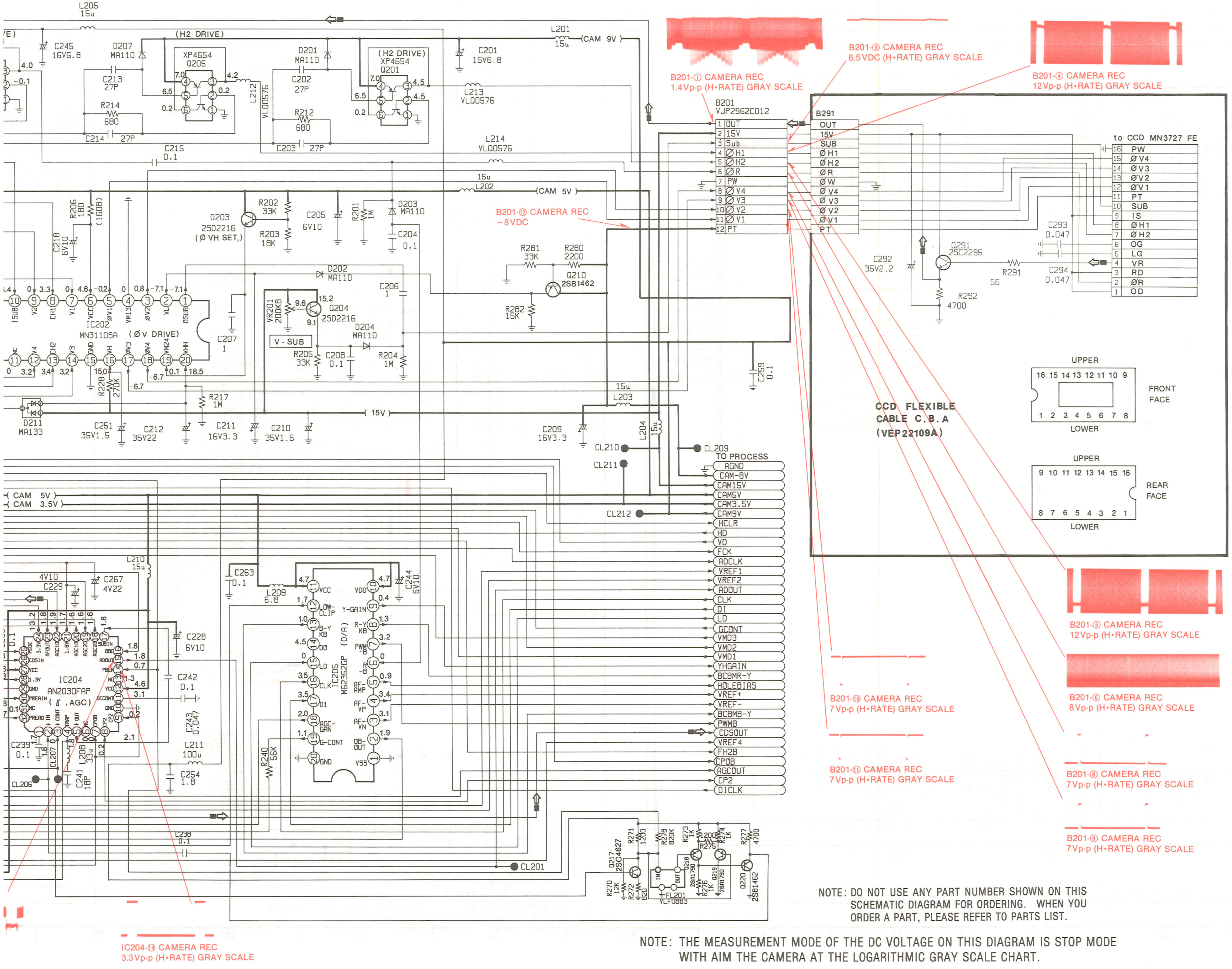
# 3-12. SENSOR SCHEMATIC DIAGRAM


VIDEO SIGNAL
E
D
C
B
A
1
2
3
4
5
6
7
8
IC201-⑪ CAMERA REC
3.4Vp-p (V•RATE) GRAY SCALE
IC201-⑰ CAMERA REC
3.3Vp-p (H•RATE) GRAY SCALE
IC201
MN5155
(CCD DRIVE PULSE GENE)
IC202
MN3105A
(ØV DRIVE)
IC203
AN2013SB
(CDS SAMPLING)
IC204
AN2030FAP
(γ, AGC)
IC205
M62352GP
(D/A)
IC206
TC7S04F
(R DRIVE)
XP4654
Q207
(H2 DRIVE)
XP4654
Q205
(H2 DRIVE)
XP4654
Q201
Q203
2SD2216
(Ø VH SET,)
Q204
2SD2216
Q209
2SD2216
(INV.)
Q210
2SB1462
Q215
XP4601
Q291
2SC2295
X201
VSX0530
25.750M
VR201
200KB
V·SUB
L201
15u
(CAM 9V)
L202
15u
(CAM 5V)
L205
15u
L207
15u
CAM 5V
CAM 3.5V
(15V)
B201-① CAMERA REC
1.4Vp-p (H•RATE) GRAY SCALE
B201-③ CAMERA REC
6.5VDC (H•RATE) GRAY SCALE
B201-⑫ CAMERA REC
−8VDC
B201-⑩ CAMERA REC
7Vp-p (H•RATE) GRAY SCALE
B201-⑪ CAMERA REC
7Vp-p (H•RATE) GRAY SCALE
B201
VJP2962C012
OUT
15V
Sub
ØH1
ØH2
ØR
PW
ØV4
ØV3
ØV2
ØV1
PT
B291
CCD FLEXIBLE
CABLE C.B.A
(VEP22109A)
CL209
TO PROCESS
AGND
CAM-8V
CAM15V
CAM5V
CAM3.5V
CAM9V
HCLR
HD
VD
FCK
ADCLK
VREF1
VREF2
ADOUT
CLK
DI
LD
GCONT
VMD3
VMD2
VMD1
YHGAIN
BCBMR-Y
HOLEBIAS
VREF+
VREF−
BCBMB-Y
PWMB
CDSOUT
VREF4
FH2B
CPOB
AGCOUT
CP2
DICLK
CL201
CL203
CL204
CL205
CL206
CL208
CL210
CL211
CL212
FL201
VLF0883
IC203-⑤ CAMERA REC
0.6Vp-p (H•RATE) GRAY SCALE
IC204-⑤ CAMERA REC
2Vp-p (H•RATE) GRAY SCALE
IC204-⑭ CAMERA REC
3.3Vp-p (H•RATE) GRAY SCALE

NOTE: DO NOT USE ANY PART NUMBER SI
SCHEMATIC DIAGRAM FOR ORDERIN
ORDER A PART, PLEASE REFER TO P

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGR
WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CH

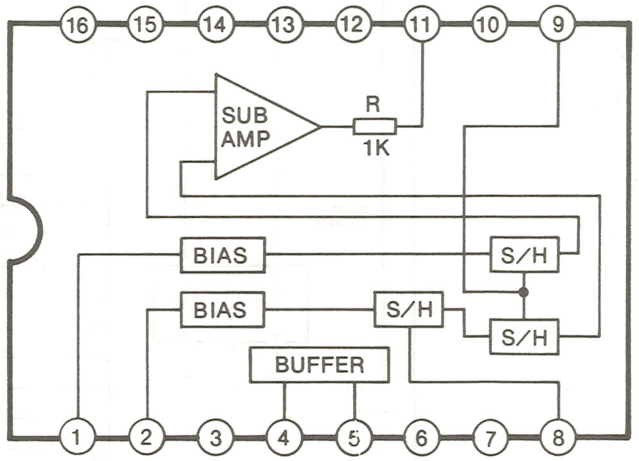
## EO SIGNAL


B201-① CAMERA REC
1.4Vp-p (H·RATE) GRAY SCALE
B201-③ CAMERA REC
6.5VDC (H·RATE) GRAY SCALE
B201-④ CAMERA REC
12Vp-p (H·RATE) GRAY SCALE
B201-⑫ CAMERA REC
−8VDC
B201-⑤ CAMERA REC
12Vp-p (H·RATE) GRAY SCALE
B201-⑥ CAMERA REC
8Vp-p (H·RATE) GRAY SCALE
B201-⑩ CAMERA REC
7Vp-p (H·RATE) GRAY SCALE
B201-⑪ CAMERA REC
7Vp-p (H·RATE) GRAY SCALE
B201-⑧ CAMERA REC
7Vp-p (H·RATE) GRAY SCALE
B201-⑨ CAMERA REC
7Vp-p (H·RATE) GRAY SCALE
IC204-⑭ CAMERA REC
3.3Vp-p (H·RATE) GRAY SCALE
B201
VJP2962C012
B291
to CCD MN3727 FE
CCD FLEXIBLE
CABLE C.B.A
(VEP22109A)
UPPER
FRONT
FACE
LOWER
REAR
FACE
IC202
MN31105A
(ØV DRIVE)
(H2 DRIVE)
XP4654
Q205
Q201
Q203
2SD2216
(Ø VH SET,)
Q204
2SD2216
Q210
2SB1462
Q291
2SC2295
V·SUB
IC204
AN2030FAP
(γ, AGC)
IC205
M62352GP
(D/A)
CAM 9V
CAM 5V
CAM 3.5V
15V
CL209
TO PROCESS
AGND
CAM-BV
CAM15V
CAM5V
CAM3.5V
CAM9V
HCLR
HD
VD
FCK
ADCLK
VREF1
VREF2
ADOUT
CLK
DI
LD
GCONT
VMD3
VMD2
VMD1
YHGAIN
BCBMR-Y
HOLEBIAS
VREF+
VREF−
BCBMB-Y
PWMB
CDSOUT
VREF4
FH2B
CPOB
AGCOUT
CP2
DICLK
CL201
CL206
CL210
CL211
CL212
Q217
2SC4627
Q218
2SB1790
Q219
2SB1790
Q220
2SB1462
FL201
VLF0883
4
5
6
7
8
9

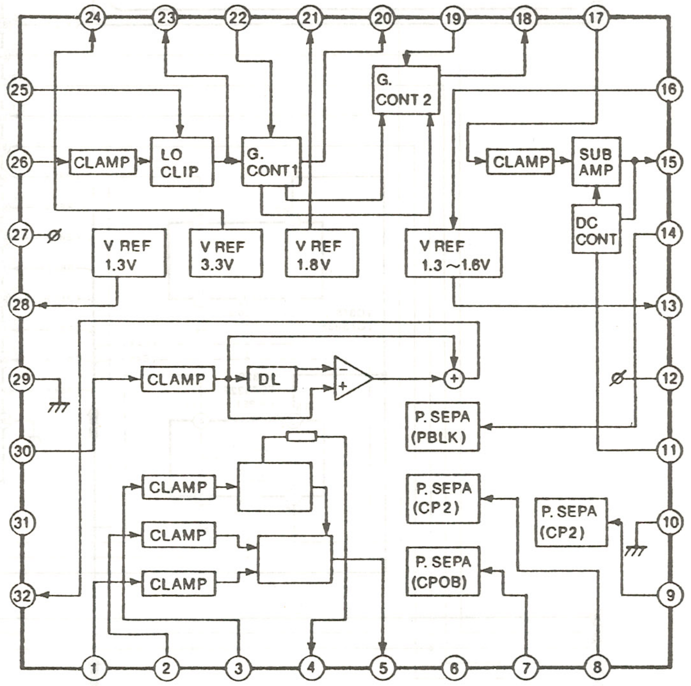
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

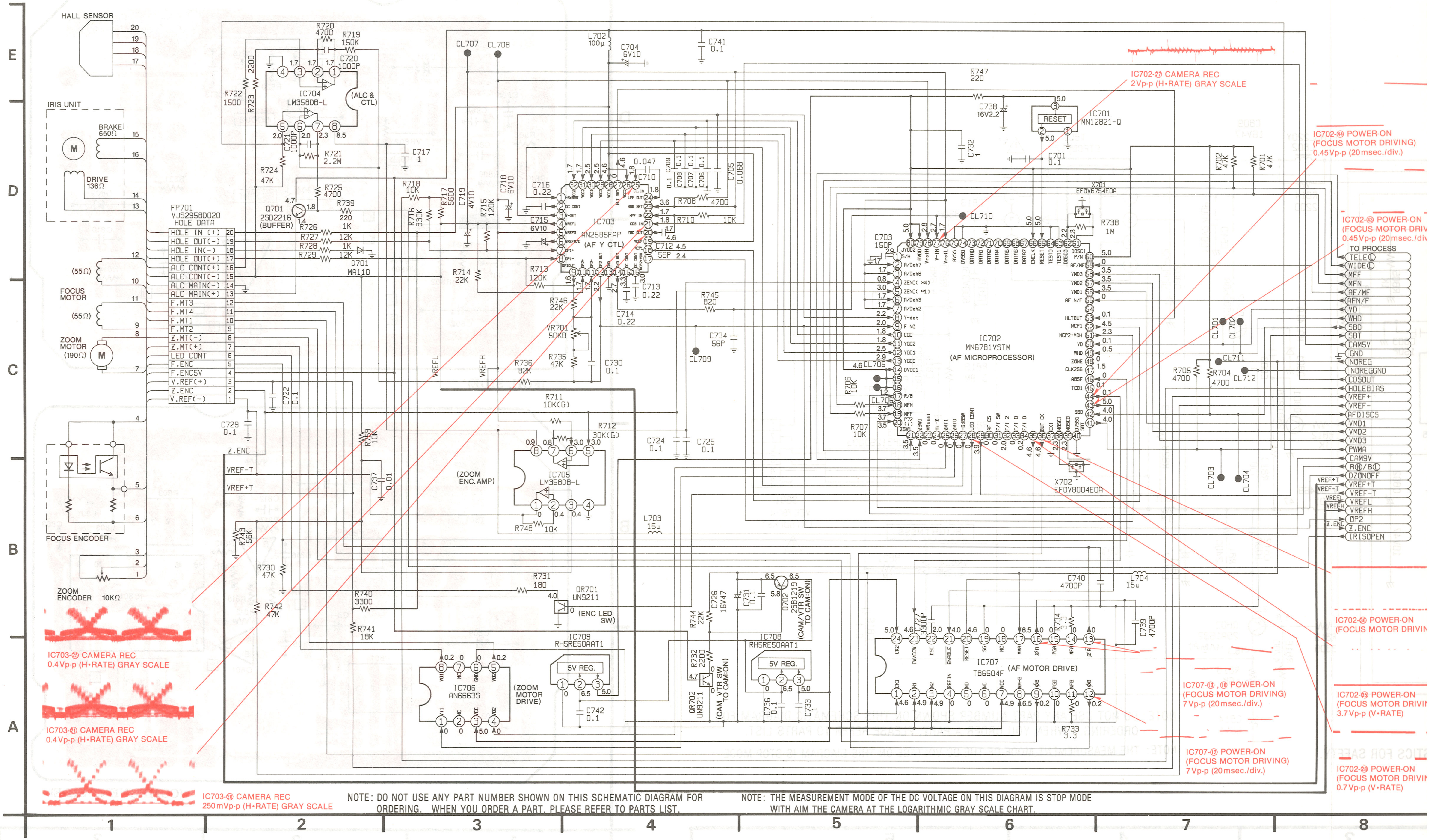
### IC203 AN2013SB


SUB
AMP
R
1K
BIAS
BIAS
BUFFER
S/H
S/H
S/H

### IC204 AN2030FAP

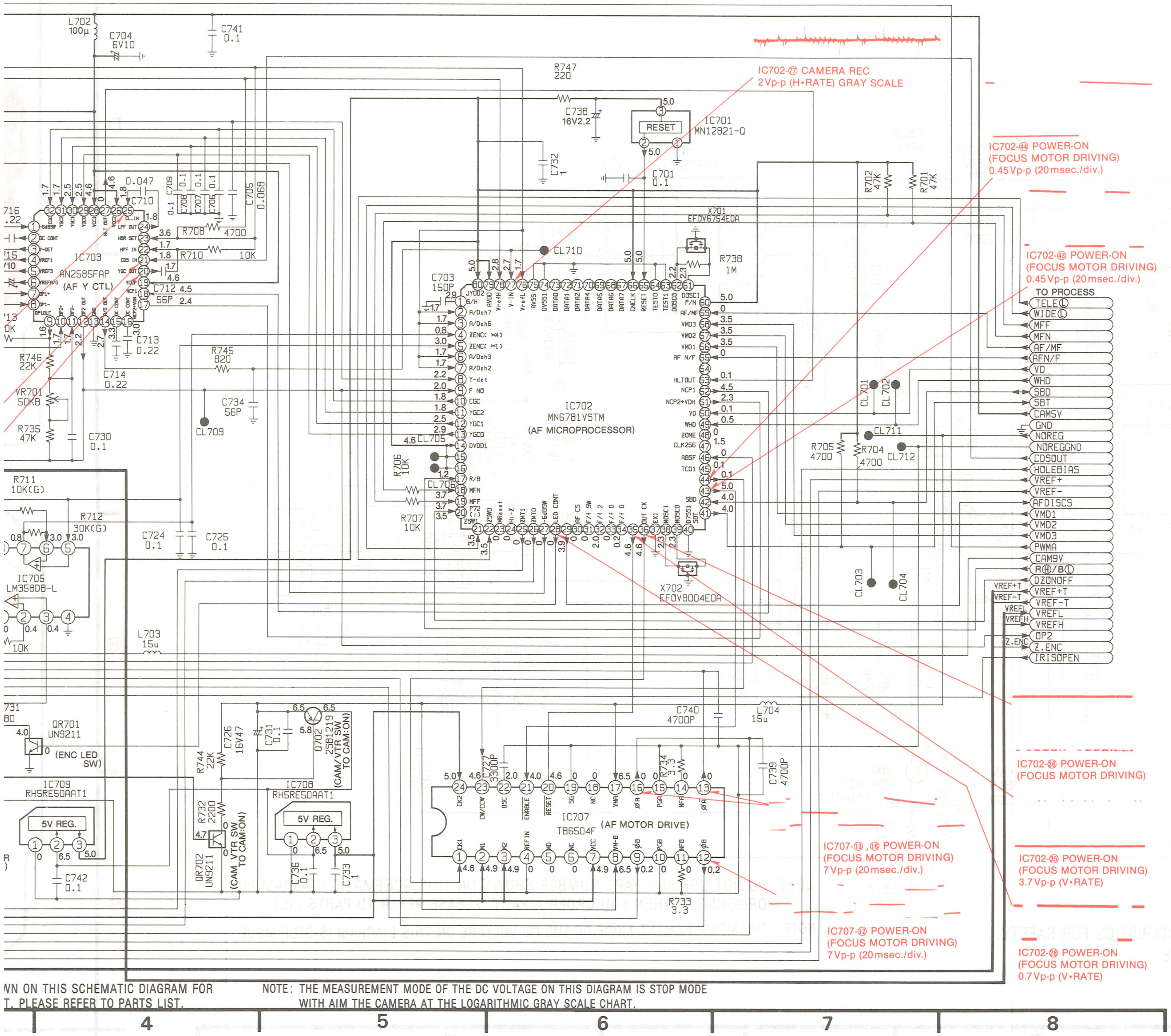

CLAMP
LO
CLIP
G.
CONT 1
G.
CONT 2
CLAMP
SUB
AMP
DC
CONT
V REF
1.3V
V REF
3.3V
V REF
1.8V
V REF
1.3～1.8V
CLAMP
DL
P. SEPA
(PBLK)
CLAMP
CLAMP
CLAMP
P. SEPA
(CP2)
P. SEPA
(CP2)
P. SEPA
(CPOB)

# 3-13. AUTO FOCUS SCHEMATIC DIAGRAM


HALL SENSOR
IRIS UNIT
BRAKE 650Ω
DRIVE 136Ω
FOCUS MOTOR
ZOOM MOTOR (190Ω)
FOCUS ENCODER
ZOOM ENCODER 10KΩ
FP701 VJS2958D020 HOLE DATA
HOLE IN (+)
HOLE OUT(-)
HOLE IN(-)
HOLE OUT(+)
ALC CONT(+)
ALC CONT(-)
ALC MAIN(-)
ALC MAIN(+)
F.MT3
F.MT4
F.MT1
F.MT2
Z.MT(-)
Z.MT(+)
LED CONT
F.ENC
F.ENC5V
V.REF(+)
Z.ENC
V.REF(-)
IC704 LM358DB-L (ALC & CTL)
Q701 2SD2216 (BUFFER)
D701 MA110
IC703 AN2585FAP (AF Y CTL)
IC705 LM358DB-L (ZOOM ENC.AMP)
QR701 UN9211 (ENC LED SW)
IC709 RH5RE50AAT1
5V REG.
IC706 AN6663S (ZOOM MOTOR DRIVE)
IC708 RH5RE50AAT1
Q702 2SB1219 (CAM/VTR SW TO CAM:ON)
QR702 UN9211 (CAM/VTR SW TO CAM:ON)
IC701 MN12821-Q
RESET
IC702 MN6781VSTM (AF MICROPROCESSOR)
X701 EF0V6754E0A
X702 EF0V8004E0A
IC707 TB6504F (AF MOTOR DRIVE)
TO PROCESS
TELE
WIDE
MFF
MFN
AF/MF
AFN/F
VD
WHD
SBD
SBT
CAM5V
GND
NOREG
NOREGGND
CDSOUT
HOLEBIAS
VREF+
VREF-
RFDISCS
VMD1
VMD2
VMD3
PWMA
CAM9V
R/B
DZOONOFF
VREF+T
VREF-T
VREFL
VREFH
OP2
Z.ENC
IRISOPEN
IC703-㉕ CAMERA REC 0.4Vp-p (H•RATE) GRAY SCALE
IC703-㉑ CAMERA REC 0.4Vp-p (H•RATE) GRAY SCALE
IC703-㉓ CAMERA REC 250mVp-p (H•RATE) GRAY SCALE
IC702-㉗ CAMERA REC 2Vp-p (H•RATE) GRAY SCALE
IC702-㊹ POWER-ON (FOCUS MOTOR DRIVING) 0.45Vp-p (20msec./div.)
IC702-㊸ POWER-ON (FOCUS MOTOR DRIV 0.45Vp-p (20msec./div
IC702-㊻ POWER-ON (FOCUS MOTOR DRIVIN
IC702-㊺ POWER-ON (FOCUS MOTOR DRIVIN 3.7Vp-p (V•RATE)
IC702-㊽ POWER-ON (FOCUS MOTOR DRIVIN 0.7Vp-p (V•RATE)
IC707-⑬,⑱ POWER-ON (FOCUS MOTOR DRIVING) 7Vp-p (20msec./div.)
IC707-⑫ POWER-ON (FOCUS MOTOR DRIVING) 7Vp-p (20msec./div.)
E
D
C
B
A
1
2
3
4
5
6
7
8

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.


L702 100µ
C704 6V10
C741 0.1
R747 220
C738 16V2.2
RESET
IC701 MN12821-Q
C732 1
C701 0.1
R702 47K
R701 47K
X701 EFOV6754E0A
R738 1M
CL710
C703 150P
IC702 MN6781VSTM (AF MICROPROCESSOR)
IC703 AN2585FAP (AF Y CTL)
R708 4700
R710 10K
C712 4.5
56P
C713 0.22
C714 0.22
R745 820
C734 56P
CL709
R746 22K
VR701 50KB
R735 47K
C730 0.1
CL705
R706 10K
CL706
R707 10K
CL701
CL702
CL711
R705 4700
R704 4700
CL712
CL703
CL704
X702 EFOV8004E0A
R711 10K(G)
R712 30K(G)
C724 0.1
C725 0.1
IC705 LM358DB-L
L703 15µ
QR701 UN9211 (ENC LED SW)
IC709 RH5RE50AAT1
5V REG.
C742 0.1
R744 22K
C726 16V47
C731 0.1
Q702 2SB1219 (CAM/VTR SW TO CAM:ON)
R732 2200
QR702 UN9211 (CAM/VTR SW TO CAM:ON)
IC708 RH5RE50AAT1
5V REG.
C736 0.1
C733 1
C727 330P
C740 4700P
L704 15µ
C739 4700P
IC707 TB6504F (AF MOTOR DRIVE)
R734 3.3
R733 3.3
TO PROCESS
TELE
WIDE
MFF
MFN
AF/MF
AFN/F
VD
WHD
SBD
SBT
CAM5V
GND
NOREG
NOREGGND
CDSOUT
HOLEBIAS
VREF+
VREF-
AFDISCS
VMD1
VMD2
VMD3
PWMA
CAM9V
R/B
DZONOFF
VREF+T
VREF-T
VREFL
VREFH
OP2
Z.ENC
IRISOPEN
4
5
6
7
8

IC702-⑰ CAMERA REC
2Vp-p (H•RATE) GRAY SCALE

IC702-㊹ POWER-ON
(FOCUS MOTOR DRIVING)
0.45Vp-p (20msec./div.)

IC702-㊸ POWER-ON
(FOCUS MOTOR DRIVING)
0.45Vp-p (20msec./div.)

IC702-㉘ POWER-ON
(FOCUS MOTOR DRIVING)

IC707-⑬ ,⑮ POWER-ON
(FOCUS MOTOR DRIVING)
7Vp-p (20msec./div.)

IC702-㉙ POWER-ON
(FOCUS MOTOR DRIVING)
3.7Vp-p (V•RATE)

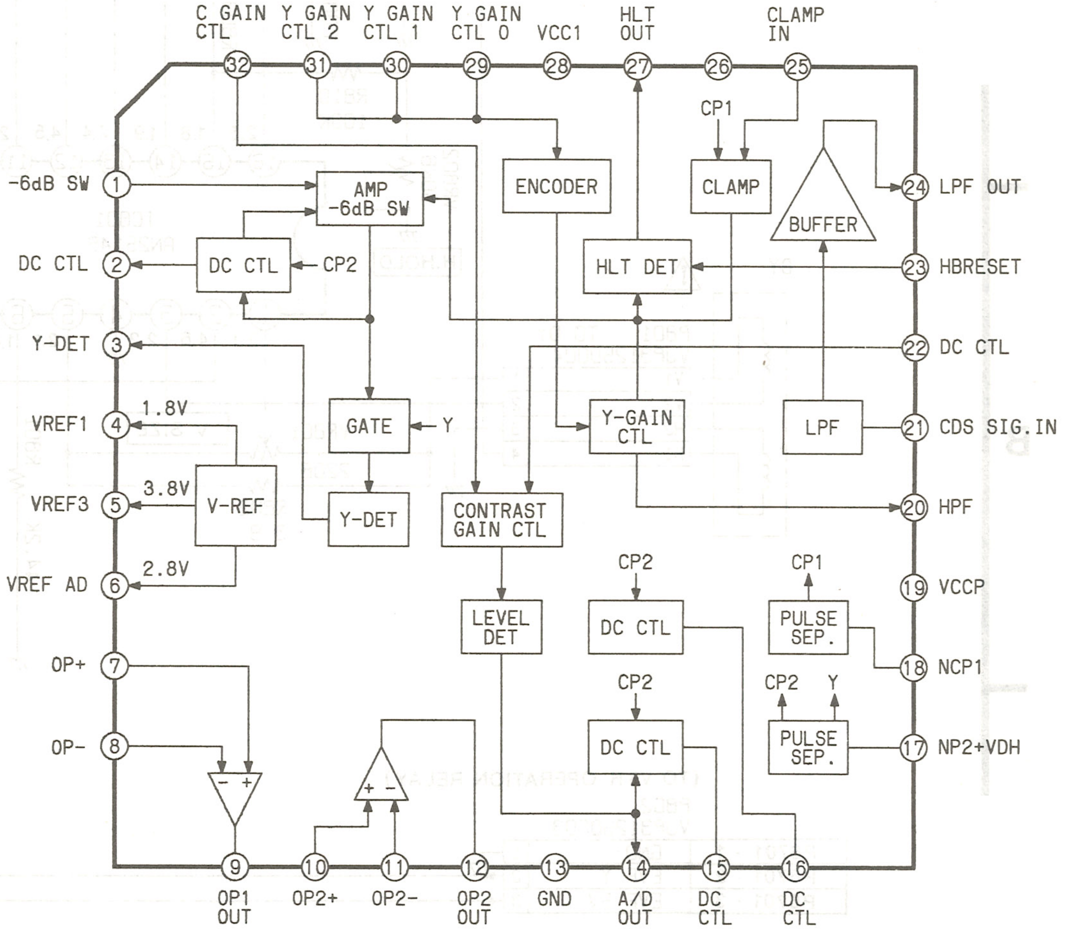
IC707-⑫ POWER-ON
(FOCUS MOTOR DRIVING)
7Vp-p (20msec./div.)

IC702-㉚ POWER-ON
(FOCUS MOTOR DRIVING)
0.7Vp-p (V•RATE)

WN ON THIS SCHEMATIC DIAGRAM FOR
T. PLEASE REFER TO PARTS LIST.

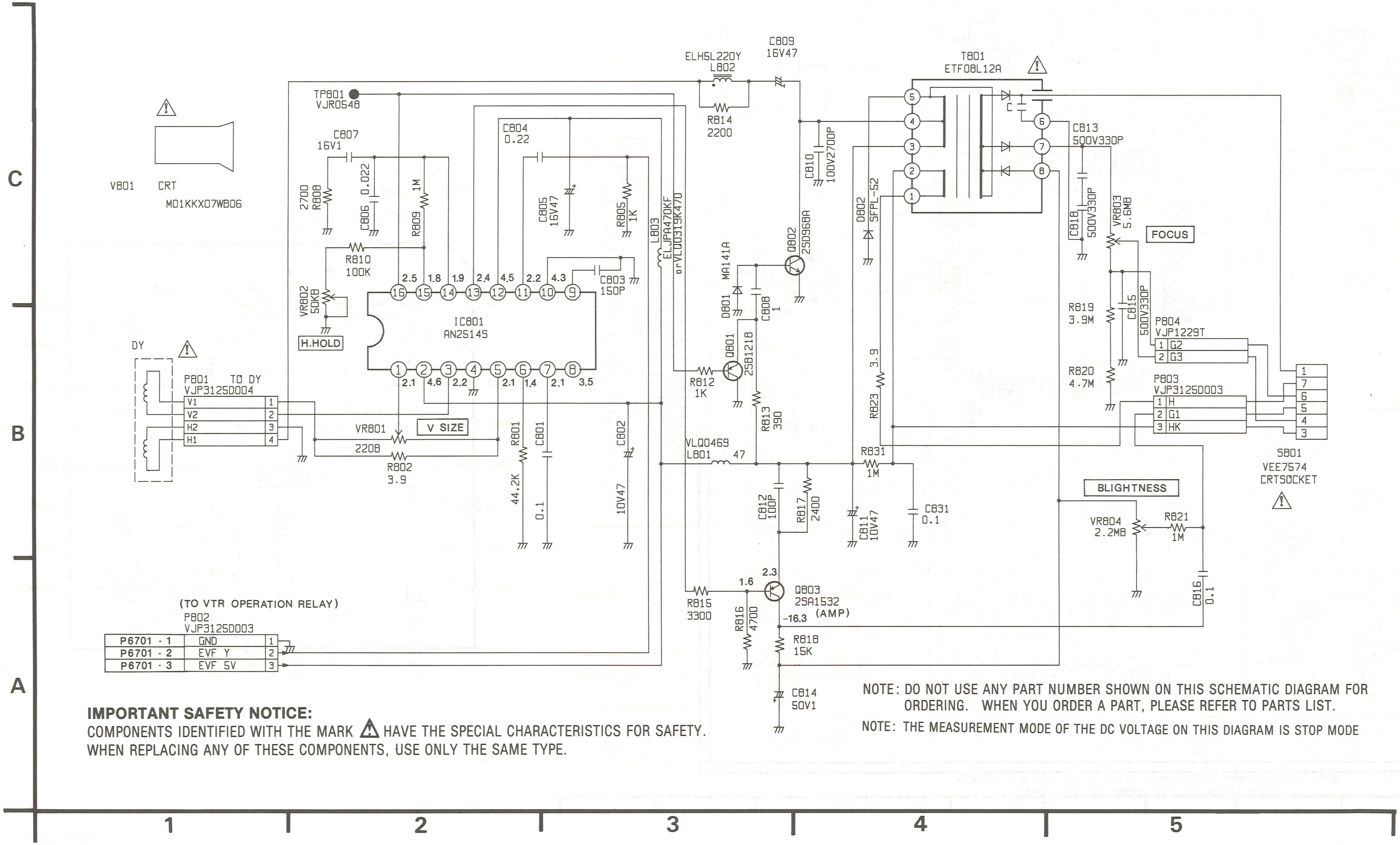
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE
WITH AIM THE CAMERA AT THE LOGARITHMIC GRAY SCALE CHART.

## IC703 AN2585FAP


C GAIN CTL
Y GAIN CTL 2
Y GAIN CTL 1
Y GAIN CTL 0
VCC1
HLT OUT
CLAMP IN
-6dB SW
DC CTL
Y-DET
VREF1
VREF3
VREF AD
OP+
OP-
1.8V
3.8V
2.8V
AMP -6dB SW
DC CTL
CP2
ENCODER
CLAMP
CP1
BUFFER
HLT DET
GATE
Y
V-REF
Y-DET
CONTRAST GAIN CTL
Y-GAIN CTL
LPF
LEVEL DET
DC CTL
PULSE SEP.
LPF OUT
HBRESET
DC CTL
CDS SIG.IN
HPF
VCCP
NCP1
NP2+VDH
OP1 OUT
OP2+
OP2-
OP2 OUT
GND
A/D OUT
DC CTL
DC CTL

Next Page:
EVF Section

# 3-14. EVF SCHEMATIC DIAGRAM

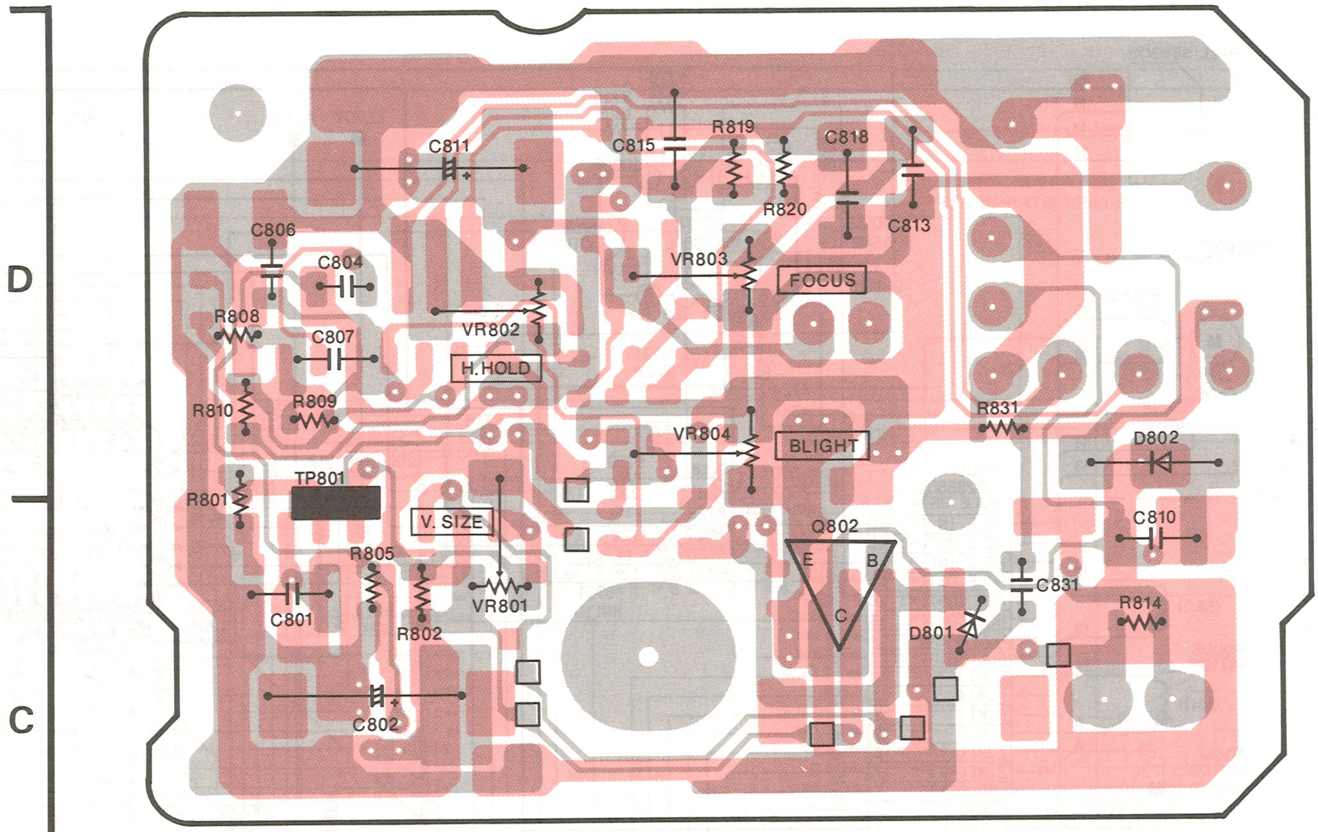

V801 CRT
M01KKX07WB06
DY
P801 TO DY
VJP3125D004
V1
V2
H2
H1
TP801
VJR0548
C807
16V1
2700
R808
C806 0.022
R809 1M
R810
100K
VR802
50KB
H.HOLD
C804
0.22
C805
16V47
R805
1K
C803
150P
IC801
AN2514S
2.5 1.8 1.9 2.4 4.5 2.2 4.3
2.1 4.6 2.2 2.1 1.4 2.1 3.5
VR801
220B
V SIZE
R802
3.9
R801
44.2K
C801
0.1
C802
10V47
ELH5L220Y
L802
R814
2200
C809
16V47
L803
ELJPA470KF
orVLQ0319K470
MA141A
D801
C808
1
Q801
2SB1218
R812
1K
R813
390
Q802
2SD968A
C810
100V2700P
VLQ0469
L801 47
C812
100P
R817
2400
C811
10V47
R831
1M
C831
0.1
D802
SFPL-52
R823
3.9
T801
ETF08L12A
C
C813
500V330P
C818
500V330P
VR803
5.6MB
FOCUS
R819
3.9M
C815
500V330P
R820
4.7M
P804
VJP1229T
G2
G3
P803
VJP3125D003
H
G1
HK
S801
VEE7574
CRTSOCKET
BLIGHTNESS
VR804
2.2MB
R821
1M
C816
0.1
R815
3300
1.6
2.3
Q803
2SA1532
(AMP)
-16.3
R816
4700
R818
15K
C814
50V1
(TO VTR OPERATION RELAY)
P802
VJP3125D003
P6701 - 1 GND
P6701 - 2 EVF Y
P6701 - 3 EVF 5V
A
B
C
1
2
3
4
5

**IMPORTANT SAFETY NOTICE:**
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

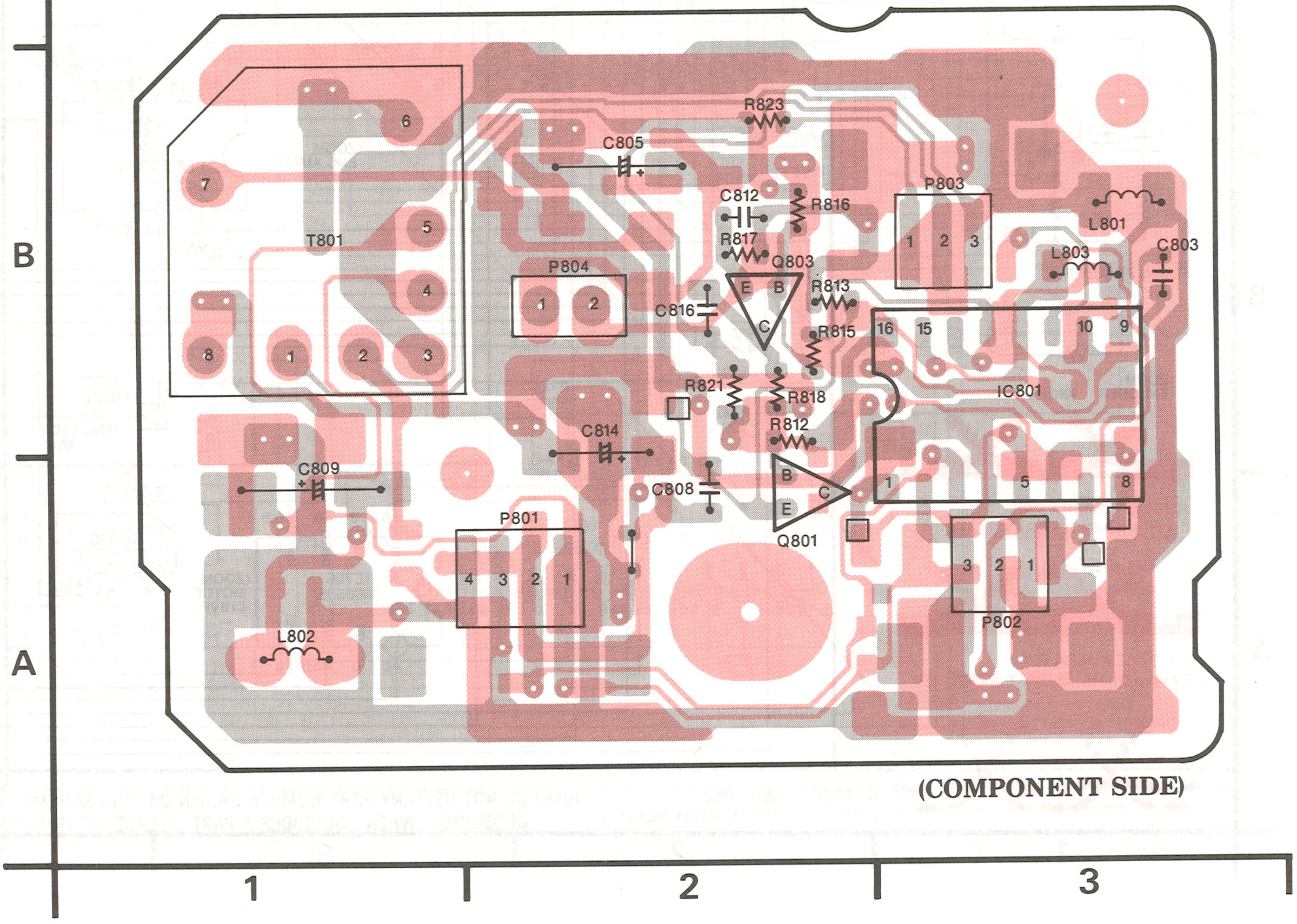
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE

## 3-15. EVF C.B.A. (VEP28054A)


D
C
C811
C815
R819
C818
R820
C813
C806
C804
VR803
FOCUS
R808
C807
VR802
H.HOLD
R810
R809
R831
VR804
BLIGHT
D802
R801
TP801
V. SIZE
C810
Q802
E
B
C
R805
C831
C801
R802
VR801
R814
D801
C802

(FOIL SIDE)


B
A
1
2
3
R823
C805
6
7
C812
R816
P803
L801
T801
5
R817
1
2
3
C803
P804
Q803
L803
4
1
2
E
B
R813
C816
R815
16
15
10
9
8
1
2
3
C
R821
R818
IC801
R812
C814
C809
B
C808
C
1
5
8
P801
E
Q801
4
3
2
1
3
2
1
L802
P802

(COMPONENT SIDE)

## CAMERA C.B.A. ADDRESS INFORMATION

| PROCESS Section | | |
|---|---|---|
| **Transistor** | | |
| Q305 | C-5 | Ⓐ |
| **Transistor & Resistor** | | |
| QR301 | C-9 | Ⓑ |
| **Integrated Circuit** | | |
| IC301 | B-2 | Ⓐ |
| IC302 | B-12 | Ⓑ |
| IC303 | C-12 | Ⓑ |
| IC304 | B-3 | Ⓐ |
| IC305 | B-10 | Ⓑ |
| IC306 | D-3 | Ⓐ |
| IC307 | E-2 | Ⓐ |
| IC308 | B-11 | Ⓑ |
| IC309 | D-11 | Ⓑ |
| IC310 | C-5 | Ⓐ |
| IC311 | B-4 | Ⓐ |
| IC312 | B-4 | Ⓐ |
| IC315 | E-12 | Ⓑ |
| IC316 | D-2 | Ⓐ |
| IC317 | E-13 | Ⓑ |
| IC318 | C-2 | Ⓐ |
| IC319 | C-2 | Ⓐ |
| IC320 | C-2 | Ⓐ |
| **Test Point** | | |
| CL302 | B-11 | Ⓑ |
| TL321 | C-13 | Ⓑ |
| TL322 | C-13 | Ⓑ |
| TL323 | B-13 | Ⓑ |
| TL324 | C-13 | Ⓑ |
| TL325 | B-13 | Ⓑ |
| TL326 | B-13 | Ⓑ |
| TL327 | B-13 | Ⓑ |
| TL328 | E-13 | Ⓑ |
| TL329 | B-11 | Ⓑ |
| **Connector** | | |
| B301 | A-9 | Ⓑ |
| B302 | C-9 | Ⓑ |
| FP301 | E-13 | Ⓑ |
| FP302 | C-13 | Ⓑ |

ADDRESS INFORMATION
Ⓐ ... A SIDE
Ⓑ ... B SIDE

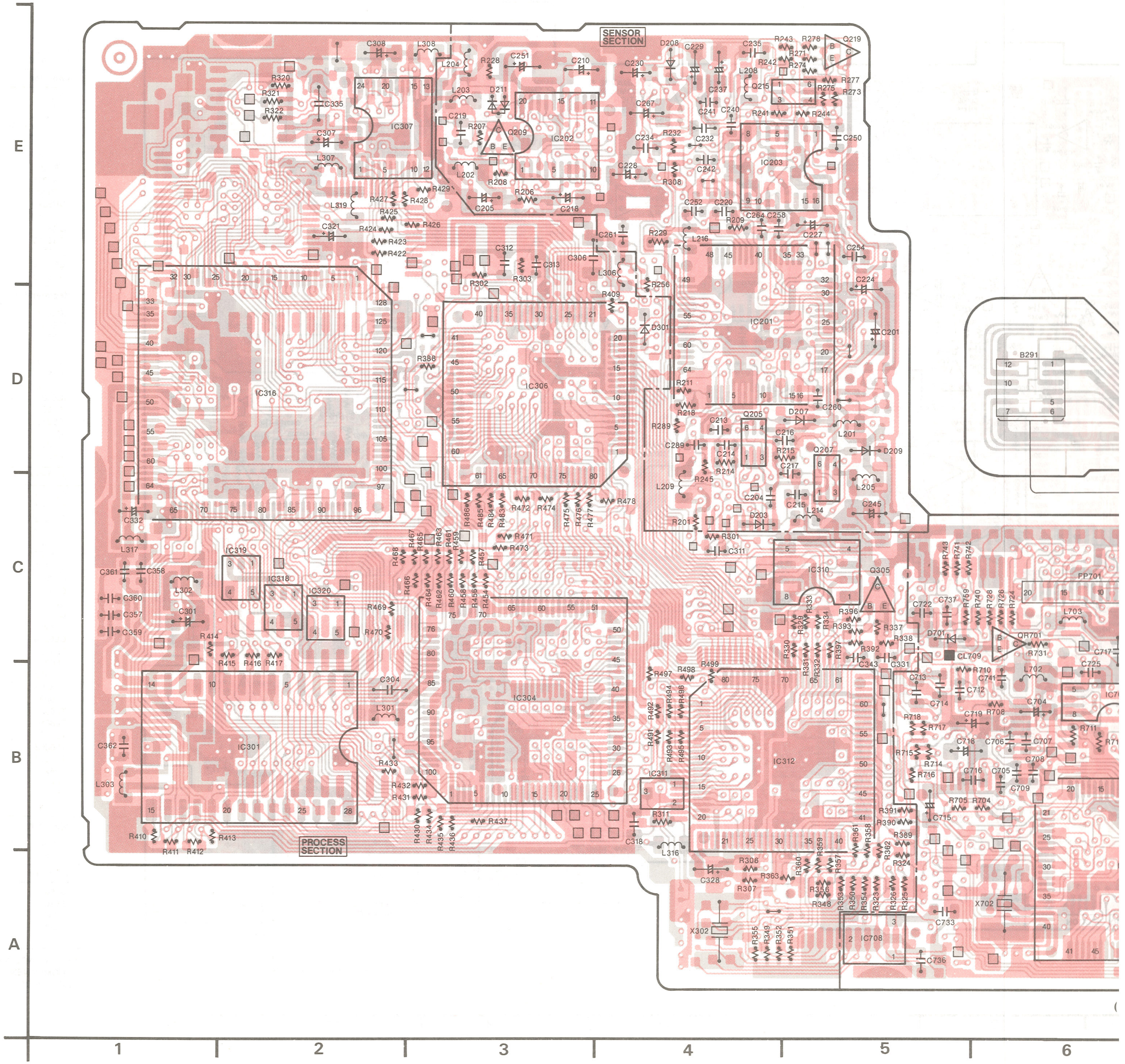
| AUTO FOCUS Section | | |
|---|---|---|
| **Transistor** | | |
| Q701 | C-8 | Ⓑ |
| Q702 | A-9 | Ⓑ |
| **Transistor & Resistor** | | |
| QR701 | C-6 | Ⓐ |
| QR702 | A-9 | Ⓑ |
| **Integrated Circuit** | | |
| IC701 | A-8 | Ⓑ |
| IC702 | A-6 | Ⓐ |
| IC703 | B-9 | Ⓑ |
| IC704 | C-8 | Ⓑ |
| IC705 | B-6 | Ⓐ |
| IC706 | A-8 | Ⓑ |
| IC707 | B-8 | Ⓑ |
| IC708 | A-5 | Ⓐ |
| IC709 | B-8 | Ⓑ |
| **Test Point** | | |
| CL701 | B-9 | Ⓑ |
| CL702 | B-9 | Ⓑ |
| CL703 | A-8 | Ⓑ |
| CL704 | A-8 | Ⓑ |
| CL705 | B-8 | Ⓑ |
| CL706 | B-8 | Ⓑ |
| CL707 | B-9 | Ⓑ |
| CL708 | B-9 | Ⓑ |
| CL709 | C-5 | Ⓐ |
| CL710 | B-9 | Ⓑ |
| CL712 | A-9 | Ⓑ |
| **Adjustment** | | |
| VR701 | A-9 | Ⓑ |
| **Connector** | | |
| FP701 | C-6 | Ⓐ |

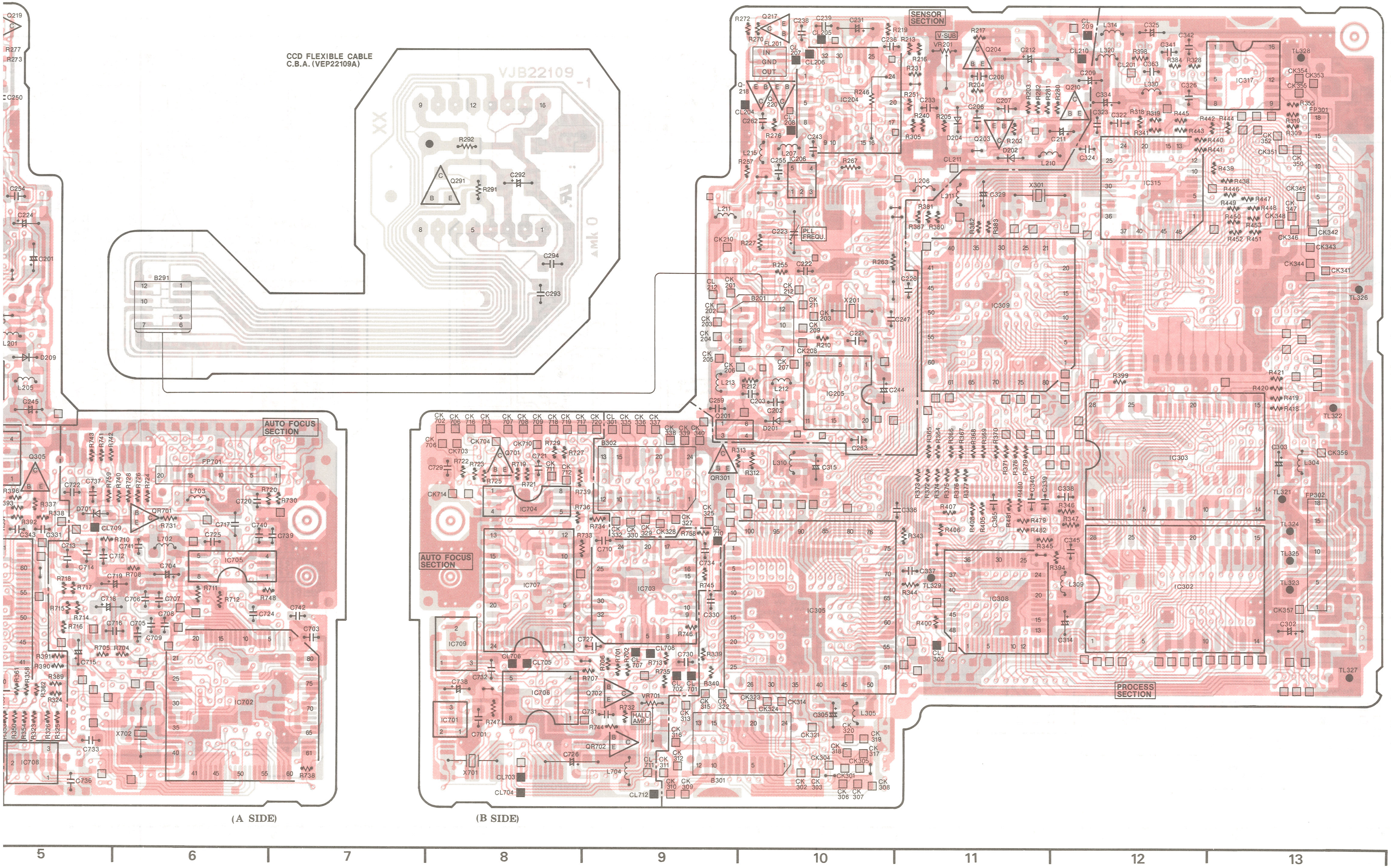
ADDRESS INFORMATION
Ⓐ ... A SIDE
Ⓑ ... B SIDE

| SENSOR Section | | |
|---|---|---|
| **Transistor** | | |
| Q201 | C-9 | Ⓑ |
| Q203 | E-11 | Ⓑ |
| Q204 | E-11 | Ⓑ |
| Q205 | D-4 | Ⓐ |
| Q207 | D-5 | Ⓐ |
| Q209 | E-3 | Ⓐ |
| Q210 | E-12 | Ⓑ |
| Q215 | E-4 | Ⓐ |
| Q217 | E-10 | Ⓑ |
| Q218 | E-10 | Ⓑ |
| Q219 | E-15 | Ⓐ |
| Q220 | E-10 | Ⓑ |
| Q291 | E-8 | |
| **Integrated Circuit** | | |
| IC201 | D-4 | Ⓐ |
| IC202 | E-3 | Ⓐ |
| IC203 | E-4 | Ⓐ |
| IC204 | E-10 | Ⓑ |
| IC205 | C-10 | Ⓑ |
| IC206 | E-10 | Ⓑ |
| **Test Point** | | |
| CL204 | E-10 | Ⓑ |
| CL205 | E-10 | Ⓑ |
| CL206 | E-10 | Ⓑ |
| CL207 | E-10 | Ⓑ |
| CL208 | E-10 | Ⓑ |
| CL209 | E-12 | Ⓑ |
| CL210 | E-12 | Ⓑ |
| CL211 | E-11 | Ⓑ |
| **Adjustment** | | |
| C223 | D-10 | Ⓑ |
| VR201 | E-11 | Ⓑ |
| **Connector** | | |
| B201 | D-10 | Ⓑ |
| B291 | D-6 | |

ADDRESS INFORMATION
Ⓐ ... A SIDE
Ⓑ ... B SIDE

## 3-16. CAMERA (PROCESS, SENSOR & AUTO FOCUS Section) C.B.A. (VEP23152A)

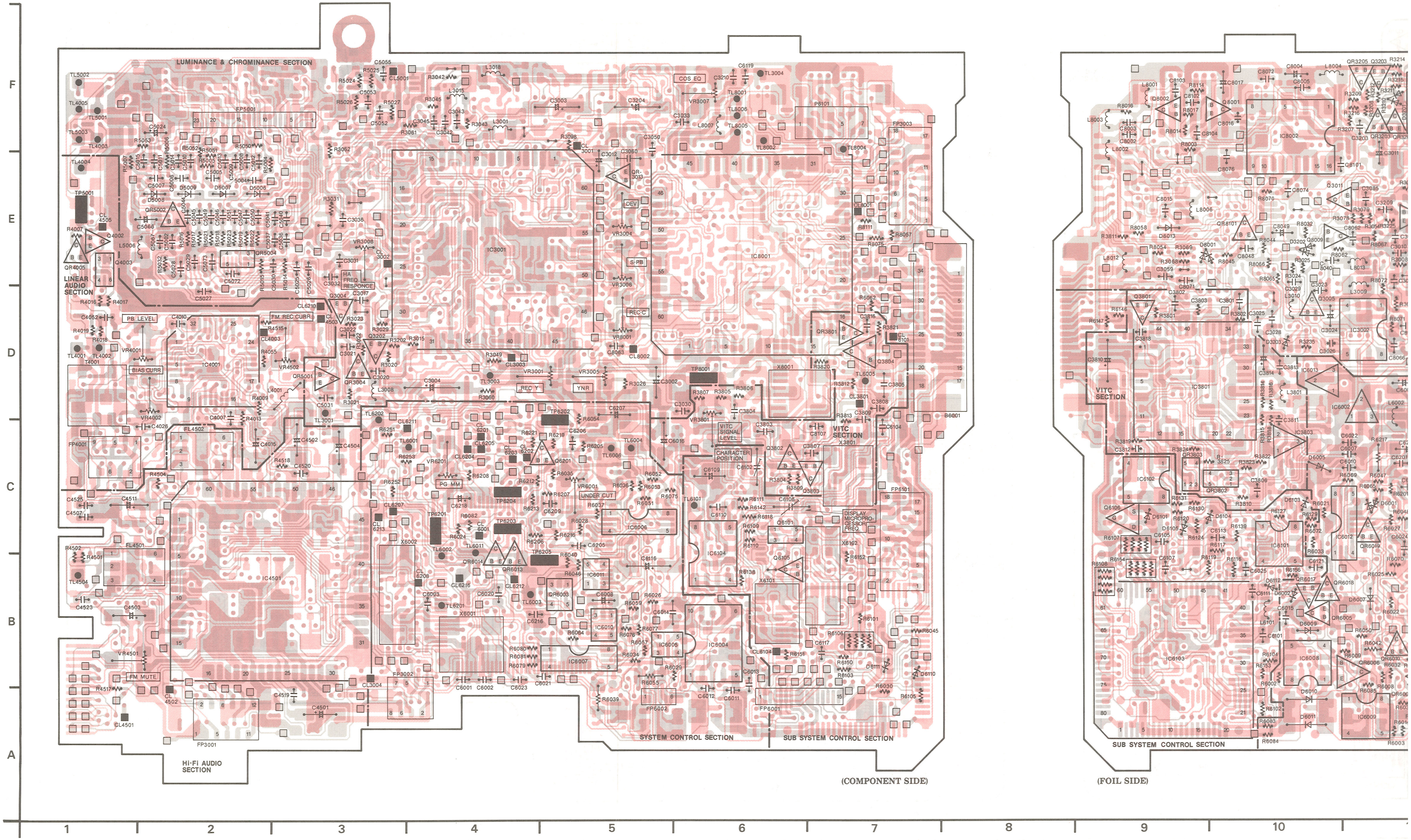

E
D
C
B
A
1
2
3
4
5
6
SENSOR SECTION
PROCESS SECTION
IC307
IC202
IC203
IC201
IC316
IC306
IC319
IC318
IC320
IC310
IC301
IC304
IC311
IC312
IC708
B291
FP701
Q219
Q215
Q209
Q205
Q207
Q305
QR701
CL709
X302
X702


CCD FLEXIBLE CABLE
C.B.A. (VEP22109A)
VJB22109 -1
SENSOR SECTION
AUTO FOCUS SECTION
AUTO FOCUS SECTION
PROCESS SECTION
5
6
7
8
9
10
11
12
13

(A SIDE)

(B SIDE)

# 3-17. MAIN (SUB SYSTEM CONTROL, SYSTEM CONTROL & SERVO, LUMINANCE & CHROMINANCE, VITC, AUDIO AND Hi-Fi AUDIO Section) C.B.A. (VEP

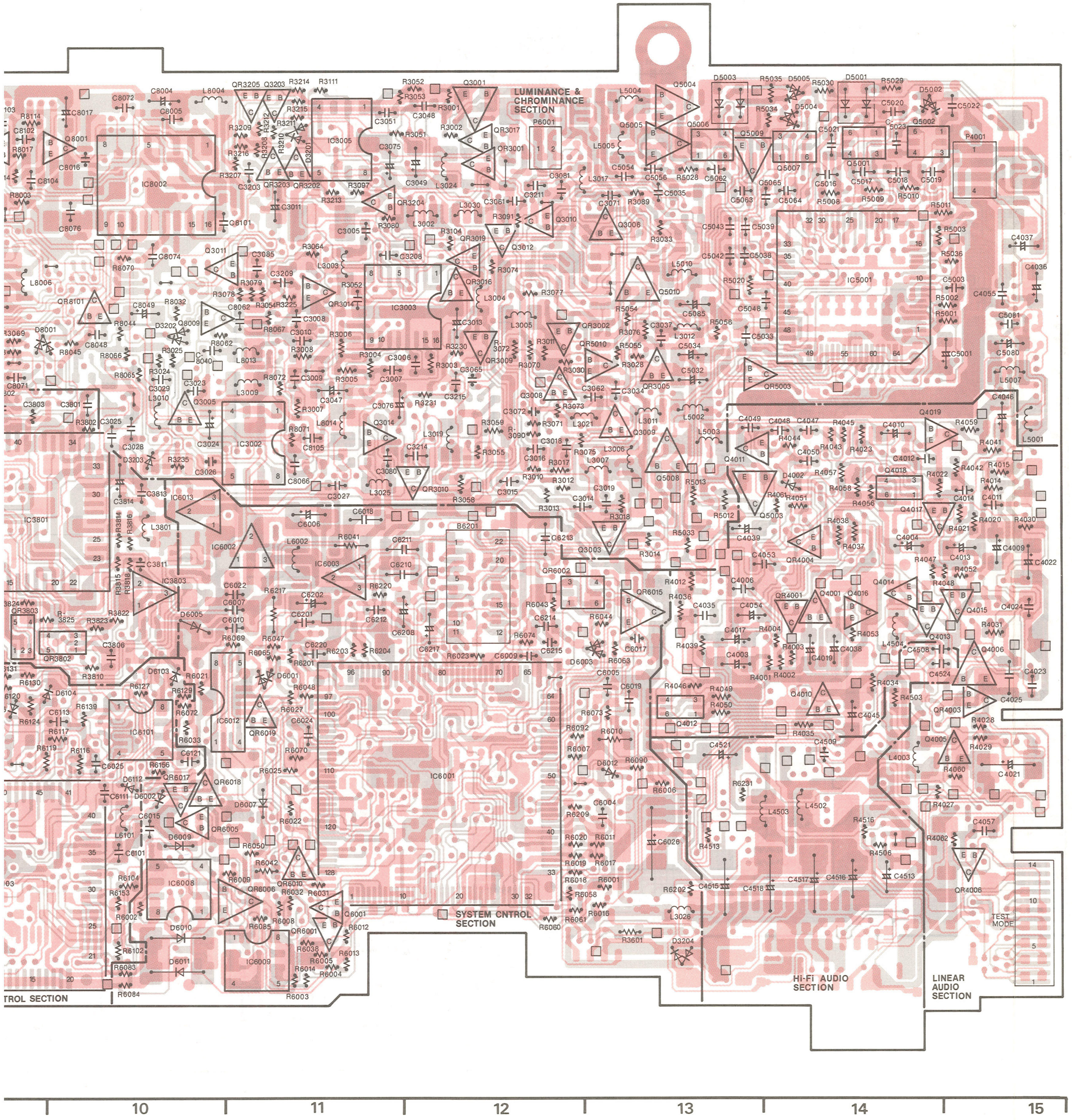

LUMINANCE & CHROMINANCE SECTION
LINEAR AUDIO SECTION
Hi-Fi AUDIO SECTION
SYSTEM CONTROL SECTION
SUB SYSTEM CONTROL SECTION
VITC SECTION
SUB SYSTEM CONTROL SECTION
IC3001
IC8001
IC4001
IC4501
IC3801
COS EQ
HA FREQ. RESPONCE
FM REC CURR
PB LEVEL
BIAS CURR
FM MUTE
REC Y
YNR
REC C
S-PB
DEV
PG MM
UNDER CUT
VITC SIGNAL LEVEL
CHARACTER POSITION
DISPLAY MICROPROCESSOR FREQ.
A
B
C
D
E
F
1
2
3
4
5
6
7
8
9
10

(COMPONENT SIDE)

(FOIL SIDE)

Back Page:
CAMERA Section

## UDIO Section) C.B.A. (VEP03939A)



# MAIN C.B.A. ADDRESS INFORMATION

| SYSTEM CONTROL Section | | |
|---|---|---|
| **Transistor** | | |
| Q6001 | B-11 | Ⓕ |
| Q6201 | C-5 | Ⓒ |
| **Transistor & Resistor** | | |
| QR6001 | A-11 | Ⓕ |
| QR6002 | C-12 | Ⓕ |
| QR6003 | B-5 | Ⓒ |
| QR6005 | B-10 | Ⓕ |
| QR6006 | B-11 | Ⓕ |
| QR6010 | B-11 | Ⓕ |
| QR6013 | B-4 | Ⓒ |
| QR6014 | B-4 | Ⓒ |
| QR6015 | C-13 | Ⓕ |
| QR6017 | B-10 | Ⓕ |
| QR6018 | B-10 | Ⓕ |
| QR6019 | C-11 | Ⓕ |
| **Integrated Circuit** | | |
| IC6001 | B-12 | Ⓕ |
| IC6002 | D-11 | Ⓕ |
| IC6003 | C-11 | Ⓕ |
| IC6004 | B-6 | Ⓒ |
| IC6005 | B-5 | Ⓒ |
| IC6006 | C-5 | Ⓒ |
| IC6007 | B-5 | Ⓒ |
| IC6008 | B-10 | Ⓕ |
| IC6009 | A-11 | Ⓕ |
| IC6010 | B-5 | Ⓒ |
| IC6011 | B-5 | Ⓒ |
| IC6012 | C-11 | Ⓕ |
| IC6013 | D-10 | Ⓕ |
| **Test Point** | | |
| CL6001 | C-4 | Ⓒ |
| CL6201 | C-4 | Ⓒ |
| CL6202 | C-4 | Ⓒ |
| CL6203 | C-4 | Ⓒ |
| CL6204 | C-4 | Ⓒ |
| CL6205 | C-4 | Ⓒ |
| CL6207 | C-3 | Ⓒ |
| CL6208 | B-4 | Ⓒ |
| CL6210 | D-3 | Ⓒ |
| CL6211 | C-3 | Ⓒ |
| CL6212 | B-4 | Ⓒ |
| CL6213 | C-3 | Ⓒ |
| CL6216 | B-4 | Ⓒ |
| TL6001 | C-3 | Ⓒ |
| TL6002 | C-4 | Ⓒ |
| TL6003 | B-4 | Ⓒ |
| TL6004 | C-5 | Ⓒ |
| TL6005 | D-7 | Ⓒ |
| TL6006 | C-5 | Ⓒ |
| TL6011 | C-4 | Ⓒ |
| TL6201 | B-4 | Ⓒ |
| TL6202 | D-3 | Ⓒ |
| TP6201 | C-4 | Ⓒ |
| TP6202 | D-5 | Ⓒ |
| TP6203 | C-4 | Ⓒ |
| TP6204 | C-4 | Ⓒ |
| TP6205 | B-5 | Ⓒ |
| **Adjustment** | | |
| VR6001 | C-5 | Ⓒ |
| VR6201 | C-4 | Ⓒ |
| **Connector** | | |
| B6001 | D-8 | Ⓒ |
| B6201 | D-12 | Ⓕ |
| FP6001 | A-6 | Ⓒ |
| P6001 | F-12 | Ⓕ |
| P6002 | B-5 | Ⓒ |

ADDRESS INFORMATION
Ⓒ... COMPONENT SIDE
Ⓕ... FOIL SIDE

| SUB SYSTEM CONTROL Section | | |
|---|---|---|
| **Transistor** | | |
| Q6101 | C-6 | Ⓒ |
| Q6105 | B-6 | Ⓒ |
| Q6106 | C-9 | Ⓕ |
| **Integrated Circuit** | | |
| IC6101 | C-10 | Ⓕ |
| IC6102 | C-9 | Ⓕ |
| IC6103 | B-9 | Ⓕ |
| IC6104 | B-6 | Ⓒ |
| **Test Point** | | |
| CL6101 | D-7 | Ⓒ |
| CL6104 | B-6 | Ⓒ |
| TL6101 | C-6 | Ⓒ |
| **Adjustment** | | |
| C6108 | C-6 | Ⓒ |
| C6202 | C-6 | Ⓒ |
| **Connector** | | |
| FP6101 | C-7 | Ⓒ |
| P6101 | F-7 | Ⓒ |

ADDRESS INFORMATION
Ⓒ... COMPONENT SIDE
Ⓕ... FOIL SIDE

| AUDIO Section | | |
|---|---|---|
| **Transistor** | | |
| Q4001 | C-14 | Ⓕ |
| Q4002 | E-1 | Ⓒ |
| Q4003 | E-1 | Ⓒ |
| Q4005 | B-15 | Ⓕ |
| Q4006 | C-15 | Ⓕ |
| Q4010 | C-14 | Ⓕ |
| Q4011 | D-13 | Ⓕ |
| Q4012 | C-13 | Ⓕ |
| Q4013 | C-14 | Ⓕ |
| Q4014 | C-14 | Ⓕ |
| Q4015 | C-15 | Ⓕ |
| Q4016 | C-14 | Ⓕ |
| Q4017 | D-14 | Ⓕ |
| Q4018 | D-14 | Ⓕ |
| Q4019 | D-14 | Ⓕ |
| **Transistor & Resistor** | | |
| QR4001 | C-14 | Ⓕ |
| QR4003 | C-15 | Ⓕ |
| QR4004 | C-14 | Ⓕ |
| QR4005 | E-1 | Ⓒ |
| QR4006 | B-15 | Ⓕ |
| **Integrated Circuit** | | |
| IC4001 | D-2 | Ⓒ |
| **Test Point** | | |
| CL4003 | D-3 | Ⓒ |
| TL4001 | D-1 | Ⓒ |
| TL4002 | D-1 | Ⓒ |
| TL4003 | F-1 | Ⓒ |
| TL4004 | E-1 | Ⓒ |
| TL4005 | F-1 | Ⓒ |
| **Adjustment** | | |
| VR4001 | D-1 | Ⓒ |
| VR4002 | D-2 | Ⓒ |
| **Connector** | | |
| FP4001 | C-1 | Ⓒ |
| P4001 | F-15 | Ⓕ |

ADDRESS INFORMATION
Ⓒ... COMPONENT SIDE
Ⓕ... FOIL SIDE

LUMINANCE & CHROMINANCE Section

| Transistor | | |
|---|---|---|
| Q3001 | F-12 | Ⓕ |
| Q3003 | D-13 | Ⓕ |
| Q3004 | D-3 | Ⓒ |
| Q3005 | D-10 | Ⓕ |
| Q3006 | E-13 | Ⓕ |
| Q3008 | D-12 | Ⓕ |
| Q3009 | D-13 | Ⓕ |
| Q3010 | E-12 | Ⓕ |
| Q3011 | E-10 | Ⓕ |
| Q3012 | E-12 | Ⓕ |
| Q3014 | D-11 | Ⓕ |
| Q3202 | D-3 | Ⓒ |
| Q3203 | F-11 | Ⓕ |
| Q5001 | F-14 | Ⓕ |
| Q5002 | F-14 | Ⓕ |
| Q5003 | D-13 | Ⓕ |
| Q5004 | F-13 | Ⓕ |
| Q5005 | F-13 | Ⓕ |
| Q5006 | F-13 | Ⓕ |
| Q5007 | F-14 | Ⓕ |
| Q5008 | D-13 | Ⓕ |
| Q5009 | F-13 | Ⓕ |
| Q5010 | E-13 | Ⓕ |
| Q8001 | F-10 | Ⓕ |
| Q8002 | F-9 | Ⓕ |
| Q8009 | E-10 | Ⓕ |
| **Transistor & Resistor** | | |
| QR3001 | F-12 | Ⓕ |
| QR3002 | E-13 | Ⓕ |
| QR3004 | D-3 | Ⓒ |
| QR3005 | D-13 | Ⓕ |
| QR3009 | E-12 | Ⓕ |
| QR3010 | D-12 | Ⓕ |
| QR3013 | E-5 | Ⓒ |
| QR3014 | E-11 | Ⓕ |
| QR3016 | E-12 | Ⓕ |
| QR3017 | F-12 | Ⓕ |
| QR3019 | E-12 | Ⓕ |
| QR3202 | F-11 | Ⓕ |
| QR3203 | F-11 | Ⓕ |
| QR3204 | E-11 | Ⓕ |
| QR3205 | F-11 | Ⓕ |
| QR5001 | D-3 | Ⓒ |
| QR5002 | E-2 | Ⓒ |
| QR5003 | D-14 | Ⓕ |
| QR5004 | E-2 | Ⓒ |
| QR5010 | E-13 | Ⓕ |
| QR8101 | E-10 | Ⓕ |

| Integrated Circuit | | |
|---|---|---|
| IC3001 | E-4 | Ⓒ |
| IC3002 | D-11 | Ⓕ |
| IC3003 | E-11 | Ⓕ |
| IC3005 | F-11 | Ⓕ |
| IC5001 | E-14 | Ⓕ |
| IC8001 | E-6 | Ⓒ |
| IC8002 | F-10 | Ⓕ |
| **Test Point** | | |
| CL3001 | F-5 | Ⓒ |
| CL3002 | E-3 | Ⓒ |
| CL3003 | D-4 | Ⓒ |
| CL3004 | B-3 | Ⓒ |
| CL5001 | A-3 | Ⓒ |
| CL8001 | E-7 | Ⓒ |
| CL8002 | D-5 | Ⓒ |
| TL3001 | D-3 | Ⓒ |
| TL3003 | D-3 | Ⓒ |
| TL3004 | F-6 | Ⓒ |
| TL5001 | F-1 | Ⓒ |
| TL5002 | F-1 | Ⓒ |
| TL5003 | F-1 | Ⓒ |
| TL8001 | F-6 | Ⓒ |
| TL8002 | F-6 | Ⓒ |
| TL8004 | E-7 | Ⓒ |
| TL8005 | F-6 | Ⓒ |
| TL8006 | F-6 | Ⓒ |
| TP5001 | E-1 | Ⓒ |
| TP8001 | D-6 | Ⓒ |
| **Adjustment** | | |
| VR3001 | D-4 | Ⓒ |
| VR3003 | E-3 | Ⓒ |
| VR3004 | E-5 | Ⓒ |
| VR3005 | D-5 | Ⓒ |
| VR3006 | E-5 | Ⓒ |
| VR3007 | F-6 | Ⓒ |
| VR8001 | D-5 | Ⓒ |
| **Connector** | | |
| FP3001 | A-2 | Ⓒ |
| FP3002 | B-3 | Ⓒ |
| FP3003 | F-7 | Ⓒ |
| FP5001 | F-2 | Ⓒ |

ADDRESS INFORMATION
Ⓒ... COMPONENT SIDE
Ⓕ... FOIL SIDE

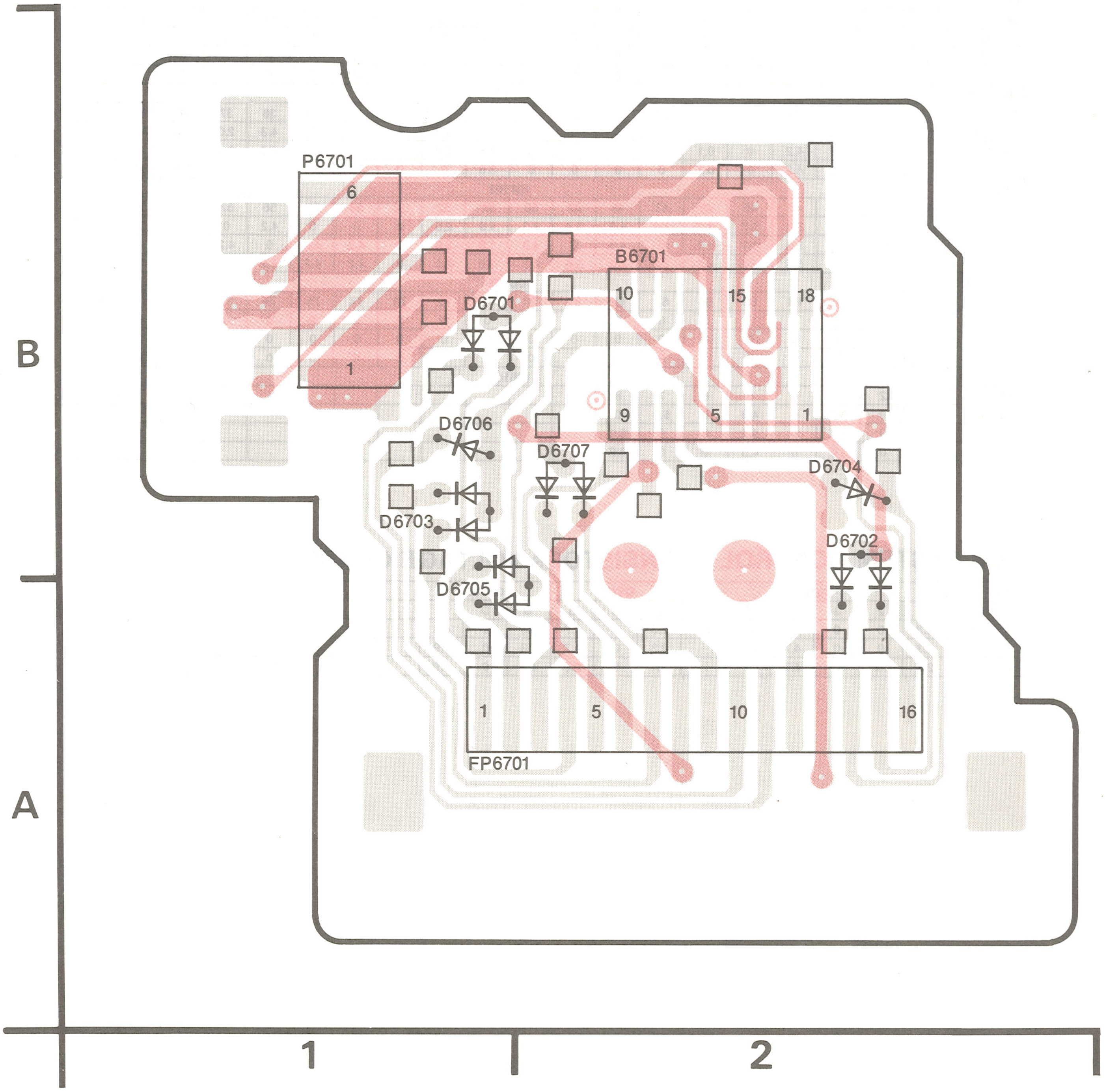
| VITC Section | | |
|---|---|---|
| **Transistor** | | |
| Q3801 | D-9 | Ⓕ |
| Q3802 | C-6 | Ⓒ |
| Q3803 | C-7 | Ⓒ |
| Q3804 | D-7 | Ⓒ |
| **Transistor & Resistor** | | |
| QR3801 | D-7 | Ⓒ |
| QR3802 | C-10 | Ⓕ |
| QR3803 | C-9 | Ⓕ |
| **Integrated Circuit** | | |
| IC3801 | D-9 | Ⓕ |
| IC3803 | C-10 | Ⓕ |
| **Test Point** | | |
| CL3801 | D-7 | Ⓒ |
| **Adjustment** | | |
| VR3801 | C-6 | Ⓒ |

ADDRESS INFORMATION
Ⓒ... COMPONENT SIDE
Ⓕ... FOIL SIDE

| Hi-Fi AUDIO Section | | |
|---|---|---|
| **Integrated Circuit** | | |
| IC4501 | B-2 | Ⓒ |

ADDRESS INFORMATION
Ⓒ... COMPONENT SIDE
Ⓕ... FOIL SIDE

# 3-18. VTR OPERATION RELAY C.B.A. (VEP06781A)


P6701
6
1
B6701
10
15
18
9
5
1
D6701
D6706
D6707
D6704
D6703
D6702
D6705
FP6701
1
5
10
16
B
A
1
2

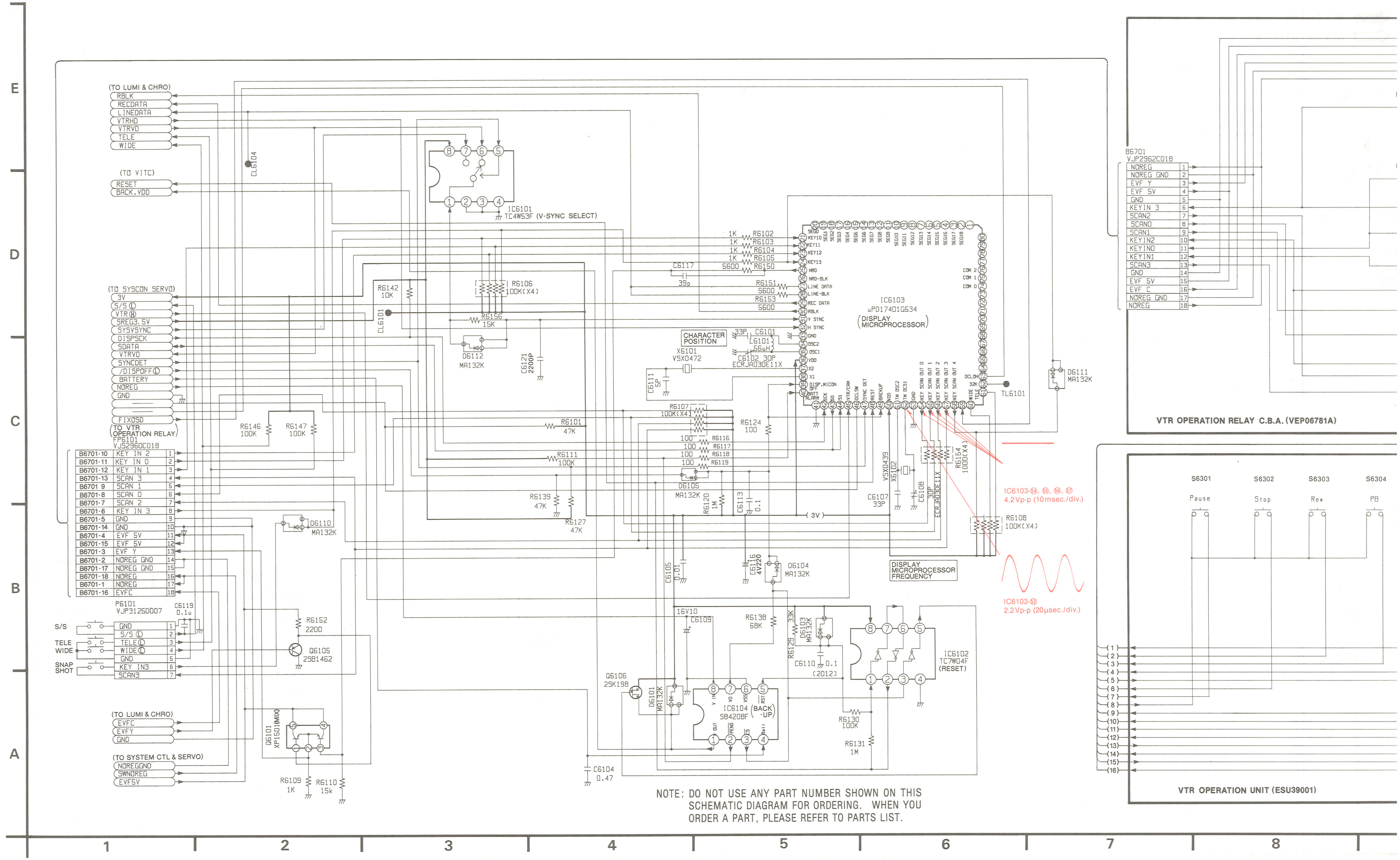
# SUB SYSTEM CONTROL ICs VOLTAGE CHART

| REF. NO. | IC6101 | | | | | | | | | | IC6102 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | |
| STOP | 3.8 | 0 | 0 | 0 | 1.0 | 0 | 3.7 | 0 | | | 4.2 | 4.2 | 4.8 | 0 | 0 | 0 | 0 | 2.0 | | |
| REC/PLAY | 3.8 | 0 | 0 | 0 | 1.0 | 4.1 | 3.7 | 3.5 | | | 4.2 | 4.2 | 4.8 | 0 | 0 | 0 | 0 | 4.3 | | |
| F.F. | 3.8 | 0 | 0 | 0 | 1.0 | 4.1 | 3.7 | 3.5 | | | 4.2 | 4.3 | 4.8 | 0 | 0 | 0 | 0 | 4.3 | | |
| REF. NO. | IC6103 | | | | | | | | | | | | | | | | | | | |
| MODE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| STOP | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| REC/PLAY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| F.F. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| REF. NO. | IC6103 | | | | | | | | | | | | | | | | | | | |
| MODE | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| STOP | 4.2 | 4.2 | 4.2 | 4.2 | 0 | 0 | 0 | 0 | 0 | 0 | 3.3 | 3.9 | 0 | 2.1 | 0 | 4.3 | 2.0 | 2.2 | 3.8 | 0 |
| REC/PLAY | 4.2 | 4.2 | 4.2 | 4.2 | 0 | 0.1 | 0 | 0 | 0 | 0 | 3.8 | 3.9 | 0 | 4.3 | 4.3 | 4.3 | 2.0 | 2.2 | 3.8 | 0 |
| F.F. | 4.2 | 4.2 | 4.2 | 4.2 | 0 | 0.1 | 0 | 0 | 0 | 0 | 3.8 | 0 | 0 | 2.1 | 2.1 | 4.3 | 2.0 | 2.2 | 3.8 | 0 |
| REF. NO. | IC6103 | | | | | | | | | | | | | | | | | | | |
| MODE | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| STOP | 0 | 3.5 | 3.5 | 3.5 | 3.7 | 4.2 | 1.0 | 4.3 | 3.8 | 4.3 | 1.9 | 2.0 | 0 | 0 | 0 | 4.2 | 0 | 4.2 | 0 | 4.2 |
| REC/PLAY | 0 | 3.5 | 3.3 | 3.3 | 0.1 | 4.2 | 0 | 4.3 | 0 | 4.3 | 1.9 | 2.0 | 0 | 4.2 | 4.2 | 0 | 4.2 | 4.2 | 0 | 4.3 |
| F.F. | 0 | 3.5 | 3.5 | 3.5 | 3.7 | 4.2 | 1.0 | 4.3 | 3.8 | 4.3 | 1.9 | 2.0 | 0 | 4.2 | 4.2 | 4.2 | 0 | 0 | 0 | 4.2 |
| REF. NO. | IC6103 | | | | | | | | | | | | | | | | | | | |
| MODE | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| STOP | 0 | 1.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| REC/PLAY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| F.F. | 0 | 1.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| REF. NO. | IC6104 | | | | | | | | | | | | | | | | | | | |
| MODE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | | | | |
| STOP | 4.9 | 0 | 5.8 | 0 | 4.3 | 0 | 5.0 | 0 | | | | | | | | | | | | |
| REC/PLAY | 0 | 0 | 4.8 | 0 | 4.3 | 0 | 0 | 6.1 | | | | | | | | | | | | |
| F.F. | 5.1 | 0 | 5.0 | 0 | 4.5 | 0 | 0 | 6.2 | | | | | | | | | | | | |

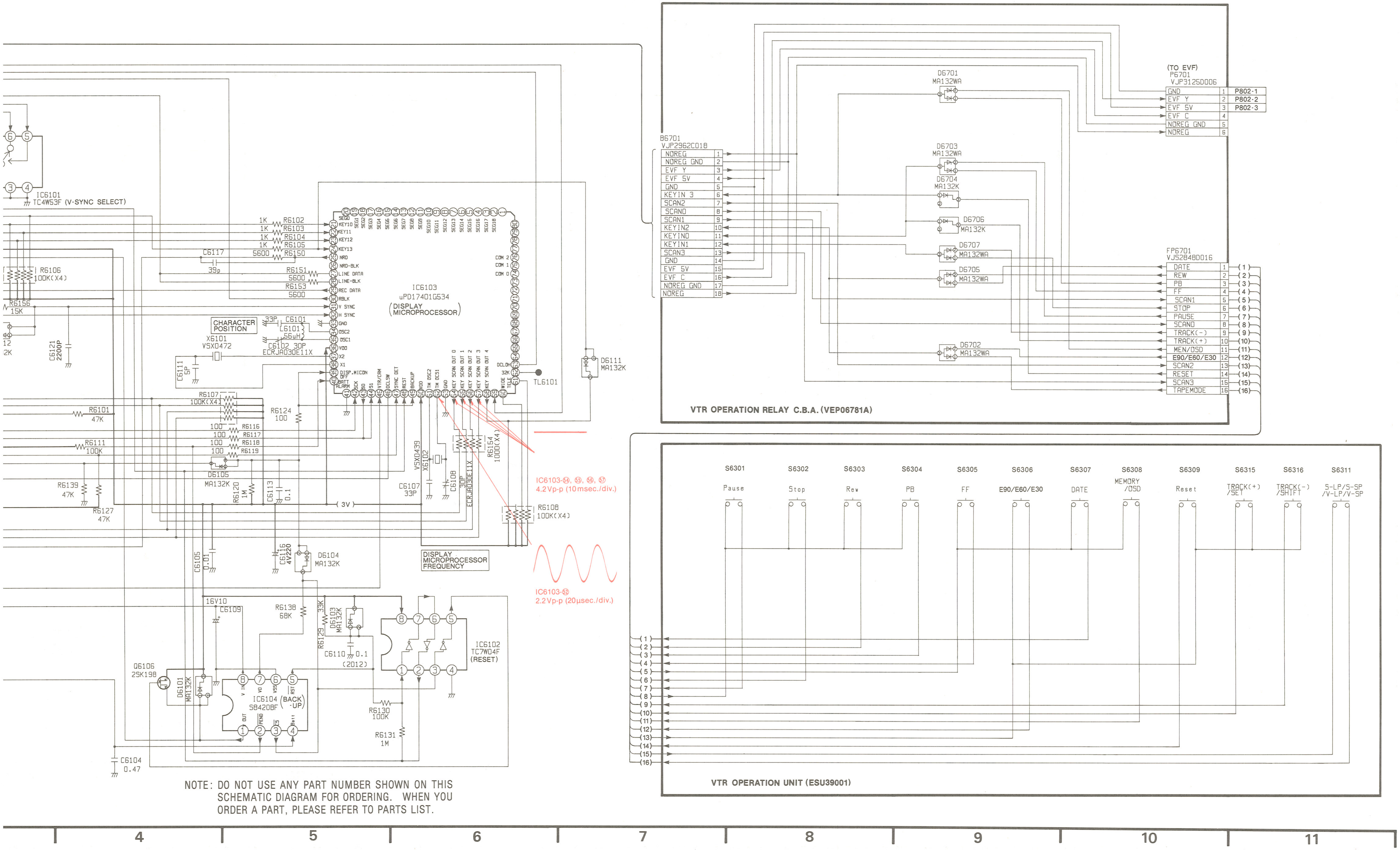
# SUB SYSTEM CONTROL TRANSISTORs VOLTAGE CHART

| REF. NO. | Q6101 | | | | | | Q6105 | | | Q6106 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODE | 1 | 2 | 3 | 4 | 5 | | E | C | B | S | D | G | | | | | | |
| STOP | 2.3 | 0 | 0 | 4.7 | 4.7 | | 2.3 | 0 | 1.7 | 4.3 | 0 | 4.9 | | | | | | |
| REC/PLAY | 2.3 | 0 | 0 | 4.7 | 4.7 | | 2.3 | 0 | 1.7 | 4.3 | 0 | 4.9 | | | | | | |
| F.F. | 2.3 | 1.7 | 0.1 | 4.7 | 0 | | 0 | 0 | 2.0 | 4.3 | 0 | 4.9 | | | | | | |

## 3-19. SUB SYSTEM CONTROL SCHEMATIC DIAGRAM


E
D
C
B
A
1
2
3
4
5
6
7
8
(TO LUMI & CHRO)
RBLK
RECDATA
LINEDATA
VTRHD
VTRVD
TELE
WIDE
(TO VITC)
RESET
BACK.VDD
CL6104
IC6101
TC4W53F (V-SYNC SELECT)
(TO SYSCON SERVO)
3V
S/S Ⓛ
VTR Ⓗ
SREG3.5V
SYSVSYNC
DISPSCK
SDATA
VTRVD
SYNCDET
/DISPOFF Ⓛ
BATTERY
NOREG
GND
FIXOSD
(TO VTR OPERATION RELAY)
FP6101
VJS2960C018
B6701-10 KEY IN 2
B6701-11 KEY IN 0
B6701-12 KEY IN 1
B6701-13 SCAN 3
B6701 9 SCAN 1
B6701-8 SCAN 0
B6701-7 SCAN 2
B6701-6 KEY IN 3
B6701-5 GND
B6701-14 GND
B6701-4 EVF 5V
B6701-15 EVF 5V
B6701-3 EVF Y
B6701-2 NOREG GND
B6701-17 NOREG GND
B6701-18 NOREG
B6701-1 NOREG
B6701-16 EVFC
P6101
VJP3125D007
C6119
0.1u
S/S
TELE
WIDE
SNAP SHOT
GND
S/S Ⓛ
TELE Ⓛ
WIDE Ⓛ
GND
KEY IN3
SCAN3
(TO LUMI & CHRO)
EVFC
EVFY
GND
(TO SYSTEM CTL & SERVO)
NOREGGND
SWNOREG
EVF5V
R6142
10K
CL6101
R6106
100K(X4)
R6156
15K
D6112
MA132K
C6121
2200P
R6146
100K
R6147
100K
R6101
47K
R6111
100K
D6110
MA132K
R6152
2200
Q6105
2SB1462
Q6101
XP1501(MIX)
R6109
1K
R6110
15k
R6139
47K
R6127
47K
C6105
0.01
C6104
0.47
Q6106
2SK198
D6101
MA132K
C6117
39p
1K R6102
1K R6103
1K R6104
1K R6105
5600 R6150
R6151 5600
5600
R6153 5600
CHARACTER POSITION
X6101
V5X0472
33P C6101
L6101 56uH
C6102 30P
ECRJA030E11X
C6111
5P
R6107
100K(X4)
100 R6116
100 R6117
100 R6118
100 R6119
D6105
MA132K
R6120
1M
C6113
0.1
R6124
100
(3V)
C6116
4V220
D6104
MA132K
16V10
C6109
R6138
68K
33K
R6129
D6103
MA132K
C6110 0.1
(2012)
IC6104 (BACK-UP)
S8420BF
R6130
100K
R6131
1M
IC6102
TC7W04F
(RESET)
IC6103
uPD17401GS34
(DISPLAY MICROPROCESSOR)
TL6101
X6102
V5X0439
C6107
33P
C6108
30P
ECRJA030E11X
R6154
1000(X4)
R6108
100K(X4)
D6111
MA132K
DISPLAY MICROPROCESSOR FREQUENCY
IC6103-54, 55, 56, 57
4.2Vp-p (10msec./div.)
IC6103-52
2.2Vp-p (20μsec./div.)
B6701
VJP2962C018
NOREG
NOREG GND
EVF Y
EVF 5V
GND
KEYIN 3
SCAN2
SCAN0
SCAN1
KEYIN2
KEYIN0
KEYIN1
SCAN3
GND
EVF 5V
EVF C
NOREG GND
NOREG
VTR OPERATION RELAY C.B.A. (VEP06781A)
S6301
Pause
S6302
Stop
S6303
Rew
S6304
PB
VTR OPERATION UNIT (ESU39001)

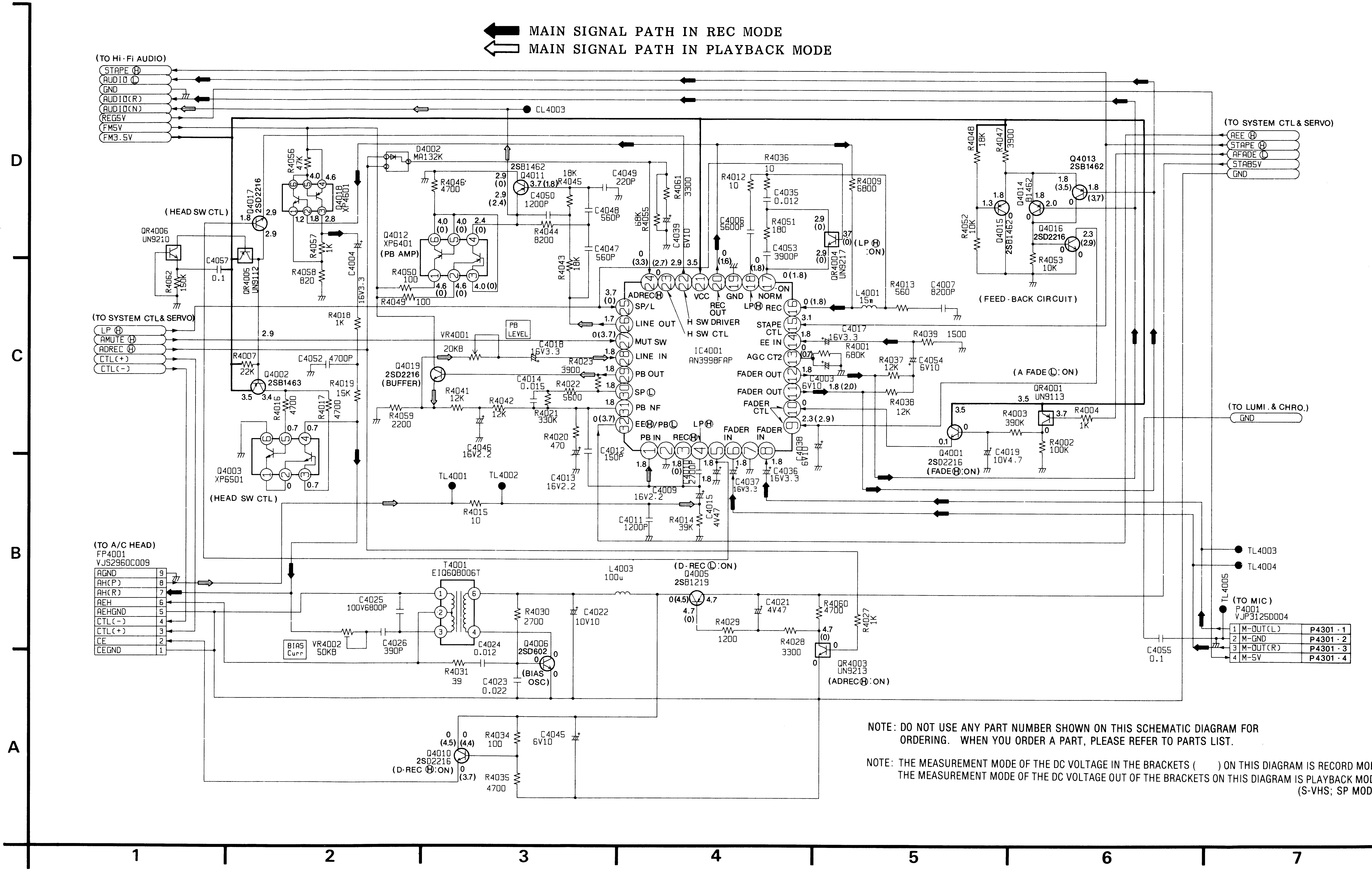
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.


IC6101
TC4W53F (V-SYNC SELECT)
R6102 1K
R6103 1K
R6104 1K
R6105 1K
R6150 5600
C6117 39p
R6106 100K(X4)
R6151 5600
R6153 5600
R6156 15K
IC6103
uPD17401G534
(DISPLAY MICROPROCESSOR)
CHARACTER POSITION
X6101 VSX0472
C6101 33P
L6101 56uH
C6102 30P ECRJA030E11X
C6121 2200P
C6111 5P
R6107 100K(X4)
R6101 47K
R6124 100
R6116 100
R6117 100
R6118 100
R6119 100
R6111 100K
D6105 MA132K
R6139 47K
R6127 47K
R6120 1M
C6113 0.1
(3V)
VSX0439 X6102
C6107 33P
C6108 30P ECRJA030E11X
R6154 100K(X4)
R6108 100K(X4)
D6111 MA132K
TL6101
IC6103-㊿, (53), (55), (57)
4.2Vp-p (10msec./div.)
IC6103-(53)
2.2Vp-p (20μsec./div.)
DISPLAY MICROPROCESSOR FREQUENCY
C6105 0.01
C6116 4V220
D6104 MA132K
16V10 C6109
R6138 68K
R6129 33K
D6103 MA132K
C6110 0.1 (2012)
IC6102 TC7W04F (RESET)
D6106 2SK198
D6101 MA132K
IC6104 S8420BF (BACK-UP)
R6130 100K
R6131 1M
C6104 0.47
B6701 VJP2962C018
NOREG
NOREG GND
EVF Y
EVF 5V
GND
KEYIN 3
SCAN2
SCAN0
SCAN1
KEYIN2
KEYIN0
KEYIN1
SCAN3
GND
EVF 5V
EVF C
NOREG GND
NOREG
D6701 MA132WA
D6703 MA132WA
D6704 MA132K
D6706 MA132K
D6707 MA132WA
D6705 MA132WA
D6702 MA132WA
(TO EVF) P6701 VJP3125D006
GND
EVF Y
EVF 5V
EVF C
NOREG GND
NOREG
P802-1
P802-2
P802-3
FP6701 VJS2848D016
DATE
REW
PB
FF
SCAN1
STOP
PAUSE
SCAN0
TRACK(-)
TRACK(+)
MEN/OSD
E90/E60/E30
SCAN2
RESET
SCAN3
TAPEMODE
VTR OPERATION RELAY C.B.A. (VEP06781A)
S6301 Pause
S6302 Stop
S6303 Rew
S6304 PB
S6305 FF
S6306 E90/E60/E30
S6307 DATE
S6308 MEMORY /OSD
S6309 Reset
S6315 TRACK(+) /SET
S6316 TRACK(-) /SHIFT
S6311 S-LP/S-SP /V-LP/V-SP
VTR OPERATION UNIT (ESU39001)
4
5
6
7
8
9
10
11

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

Next Page:
AUDIO Section

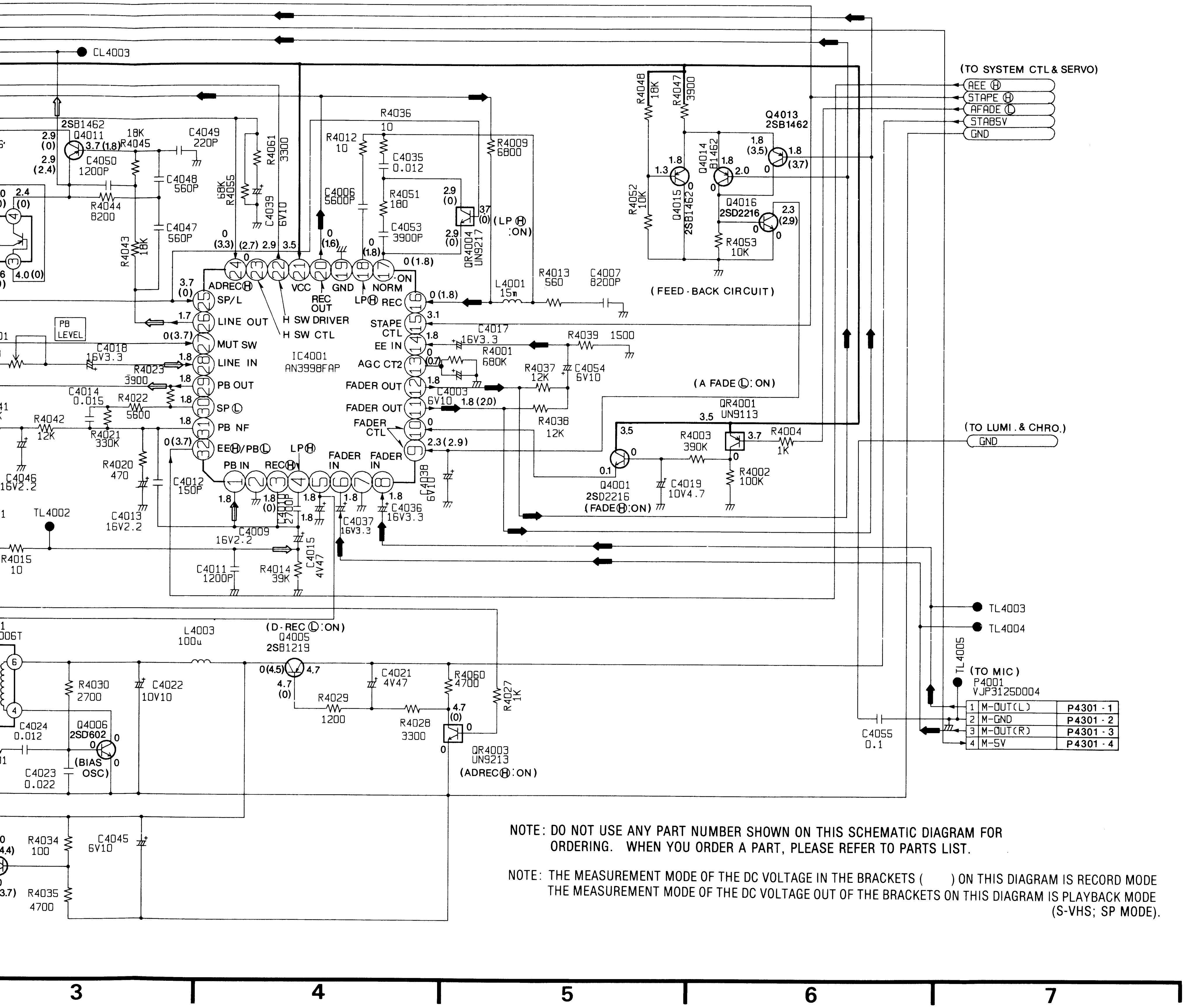
# 3-20. AUDIO SCHEMATIC DIAGRAM


MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE
(TO Hi-Fi AUDIO)
STAPE Ⓗ
AUDIO Ⓛ
GND
AUDIO(R)
AUDIO(N)
REG5V
FM5V
FM3.5V
CL4003
(TO SYSTEM CTL & SERVO)
AEE Ⓗ
STAPE Ⓗ
AFADE Ⓛ
STAB5V
GND
(HEAD SW CTL)
QR4006 UN9210
Q4017 2SD2216
Q4018 XP4601
R4056 47K
R4057 1K
R4058 820
C4057 0.1
R4062 150K
QR4005 UN9112
D4002 MA132K
R4046 4700
Q4011 2SB1462
R4045 18K
C4050 1200P
C4049 220P
C4048 560P
C4047 560P
R4044 8200
R4043 18K
R4055 68K
R4061 3300
C4039 6V10
Q4012 XP6401 (PB AMP)
R4050 100
R4049 100
C4004 16V3.3
R4018 1K
R4019 15K
(TO SYSTEM CTL & SERVO)
LP Ⓗ
AMUTE Ⓗ
ADREC Ⓗ
CTL(+)
CTL(-)
R4007 22K
Q4002 2SB1463
C4052 4700P
R4016 4700
R4017 4700
Q4003 XP6501
(HEAD SW CTL)
VR4001 20KB
PB LEVEL
Q4019 2SD2216 (BUFFER)
C4018 16V3.3
R4023 3900
C4014 0.015
R4022 5600
R4041 12K
R4042 12K
R4059 2200
R4021 330K
C4046 16V2.2
R4020 470
C4012 150P
C4013 16V2.2
TL4001
TL4002
R4015 10
IC4001 AN3998FAP
ADREC Ⓗ
SP/L
LINE OUT
MUT SW
LINE IN
PB OUT
SP Ⓛ
PB NF
EE Ⓗ/PB Ⓛ
PB IN
REC Ⓗ
LP Ⓗ
FADER IN
FADER IN
VCC
REC OUT
GND
NORM
ON
LP Ⓗ REC
H SW DRIVER
H SW CTL
STAPE CTL
EE IN
AGC CT2
FADER OUT
FADER OUT
FADER CTL
R4036 10
R4012 10
C4035 0.012
C4006 5600P
R4051 180
C4053 3900P
R4009 6800
QR4004 UN9217
(LP Ⓗ :ON)
L4001 15m
R4013 560
C4007 8200P
C4017 16V3.3
R4001 680K
R4039 1500
R4037 12K
C4054 6V10
C4003 6V10
R4038 12K
C4038 6V10
C4036 16V3.3
C4037 16V3.3
C4009 16V2.2
C4015 4V47
R4014 39K
C4011 1200P
C4016 2700P
R4048 18K
R4047 3900
Q4013 2SB1462
Q4014 2SB1462
Q4015 2SB1462
Q4016 2SD2216
R4052 10K
R4053 10K
(FEED-BACK CIRCUIT)
(A FADE Ⓛ:ON)
QR4001 UN9113
R4003 390K
R4004 1K
R4002 100K
C4019 10V4.7
Q4001 2SD2216 (FADE Ⓗ:ON)
(TO LUMI. & CHRO.)
GND
(TO A/C HEAD)
FP4001 VJS2960C009
9 AGND
8 AH(P)
7 AH(R)
6 AEH
5 AEHGND
4 CTL(-)
3 CTL(+)
2 CE
1 CEGND
T4001 EI0608006T
C4025 100V6800P
VR4002 50KB
BIAS Curr
C4026 390P
R4031 39
C4023 0.022
C4024 0.012
R4030 2700
C4022 10V10
Q4006 2SD602 (BIAS OSC)
L4003 100u
(D-REC Ⓛ:ON)
Q4005 2SB1219
R4029 1200
C4021 4V47
R4028 3300
R4060 4700
R4027 1K
QR4003 UN9213 (ADREC Ⓗ:ON)
TL4003
TL4004
TL4005
(TO MIC)
P4001 VJP3125D004
1 M-OUT(L) P4301-1
2 M-GND P4301-2
3 M-OUT(R) P4301-3
4 M-5V P4301-4
C4055 0.1
Q4010 2SD2216 (D-REC Ⓗ:ON)
R4034 100
C4045 6V10
R4035 4700
D
C
B
A
1
2
3
4
5
6
7

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MO
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MO
(S-VHS; SP MOD

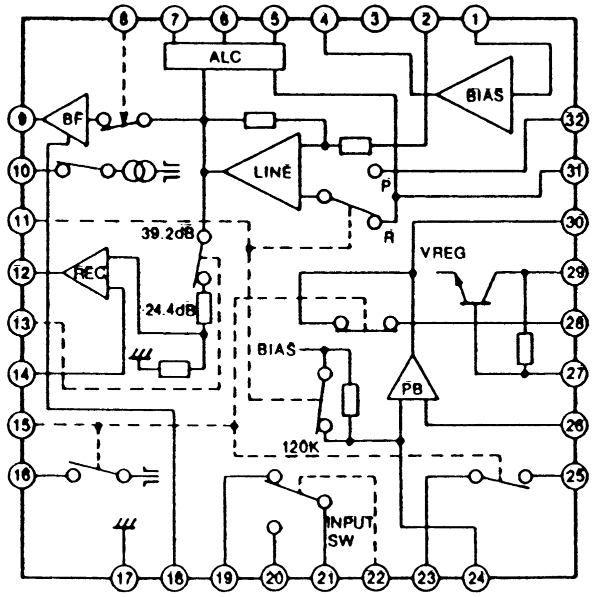
⬅ MAIN SIGNAL PATH IN REC MODE
⇦ MAIN SIGNAL PATH IN PLAYBACK MODE


CL4003
(TO SYSTEM CTL & SERVO)
AEE Ⓗ
STAPE Ⓗ
AFADE Ⓛ
STAB5V
GND
Q4011 2SB1462
C4050 1200P
R4045 18K
C4049 220P
C4048 560P
C4047 560P
R4044 8200
R4043 18K
R4055 68K
R4061 3300
C4039 6V10
R4036 10
R4012 10
C4035 0.012
C4006 5600P
R4051 180
C4053 3900P
R4009 6800
QR4004 UN9217
(LP Ⓗ :ON)
R4048 18K
R4047 3900
Q4013 2SB1462
Q4014 2SB1462
Q4015 2SB1462
Q4016 2SD2216
R4052 10K
R4053 10K
(FEED-BACK CIRCUIT)
IC4001 AN3998FAP
ADREC Ⓗ
SP/L
LINE OUT
MUT SW
LINE IN
PB OUT
SP Ⓛ
PB NF
EE Ⓗ/PB Ⓛ
PB IN
REC Ⓗ
LP Ⓗ
FADER IN
VCC
REC OUT
GND
NORM
LP Ⓗ
ON
REC
H SW DRIVER
H SW CTL
STAPE CTL
EE IN
AGC CT2
FADER OUT
FADER OUT
FADER CTL
PB LEVEL
L4001 15m
R4013 560
C4007 8200P
C4017 16V3.3
R4001 680K
R4039 1500
R4037 12K
C4054 6V10
C4003 6V10
R4038 12K
(A FADE Ⓛ: ON)
QR4001 UN9113
R4003 390K
R4004 1K
R4002 100K
Q4001 2SD2216
(FADE Ⓗ:ON)
C4019 10V4.7
C4018 16V3.3
R4023 3900
C4014 0.015
R4022 5600
R4042 12K
R4021 330K
R4020 470
C4046 16V2.2
C4012 150P
C4013 16V2.2
C4009 16V2.2
C4037 16V3.3
C4036 16V3.3
C4038 6V10
C4015 4V47
R4014 39K
C4011 1200P
TL4002
R4015 10
(TO LUMI. & CHRO.)
GND
L4003 100u
(D-REC Ⓛ:ON)
Q4005 2SB1219
R4030 2700
C4022 10V10
C4021 4V47
R4029 1200
R4028 3300
R4060 4700
R4027 1K
QR4003 UN9213
(ADREC Ⓗ:ON)
C4024 0.012
Q4006 2SD602
(BIAS OSC)
C4023 0.022
R4034 100
C4045 6V10
R4035 4700
TL4003
TL4004
TL4005
(TO MIC)
P4001 VJP3125D004
1 M-OUT(L) P4301-1
2 M-GND P4301-2
3 M-OUT(R) P4301-3
4 M-5V P4301-4
C4055 0.1
3
4
5
6
7

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

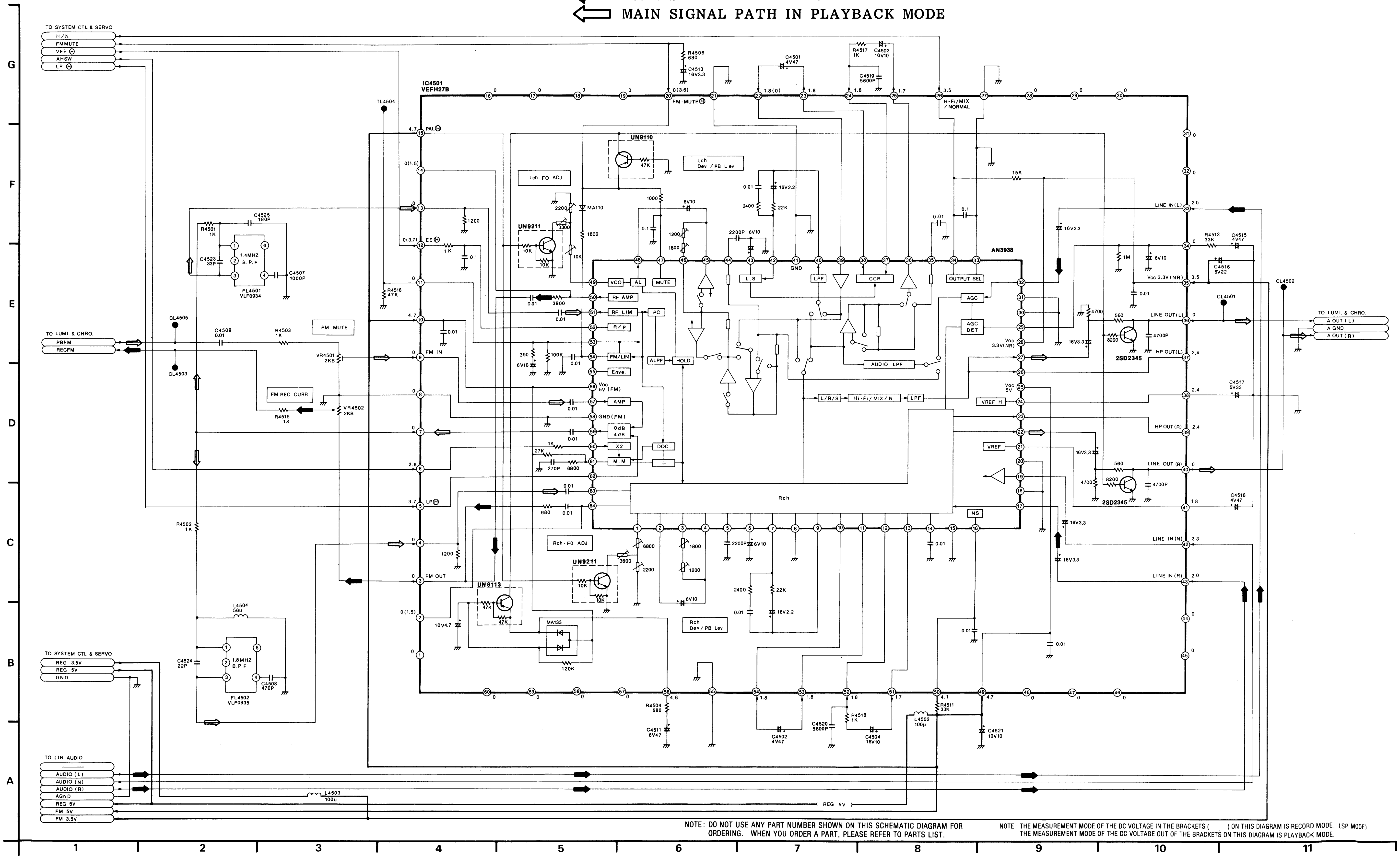
NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE (S-VHS; SP MODE).

IC4001(BA7757BK)


ALC
BIAS
BF
LINE
P
R
39.2dB
REC
24.4dB
VREG
BIAS
PB
120K
INPUT SW

## 3-21. Hi-Fi AUDIO SCHEMATIC DIAGRAM

MAIN SIGNAL PATH IN REC MODE
MAIN SIGNAL PATH IN PLAYBACK MODE

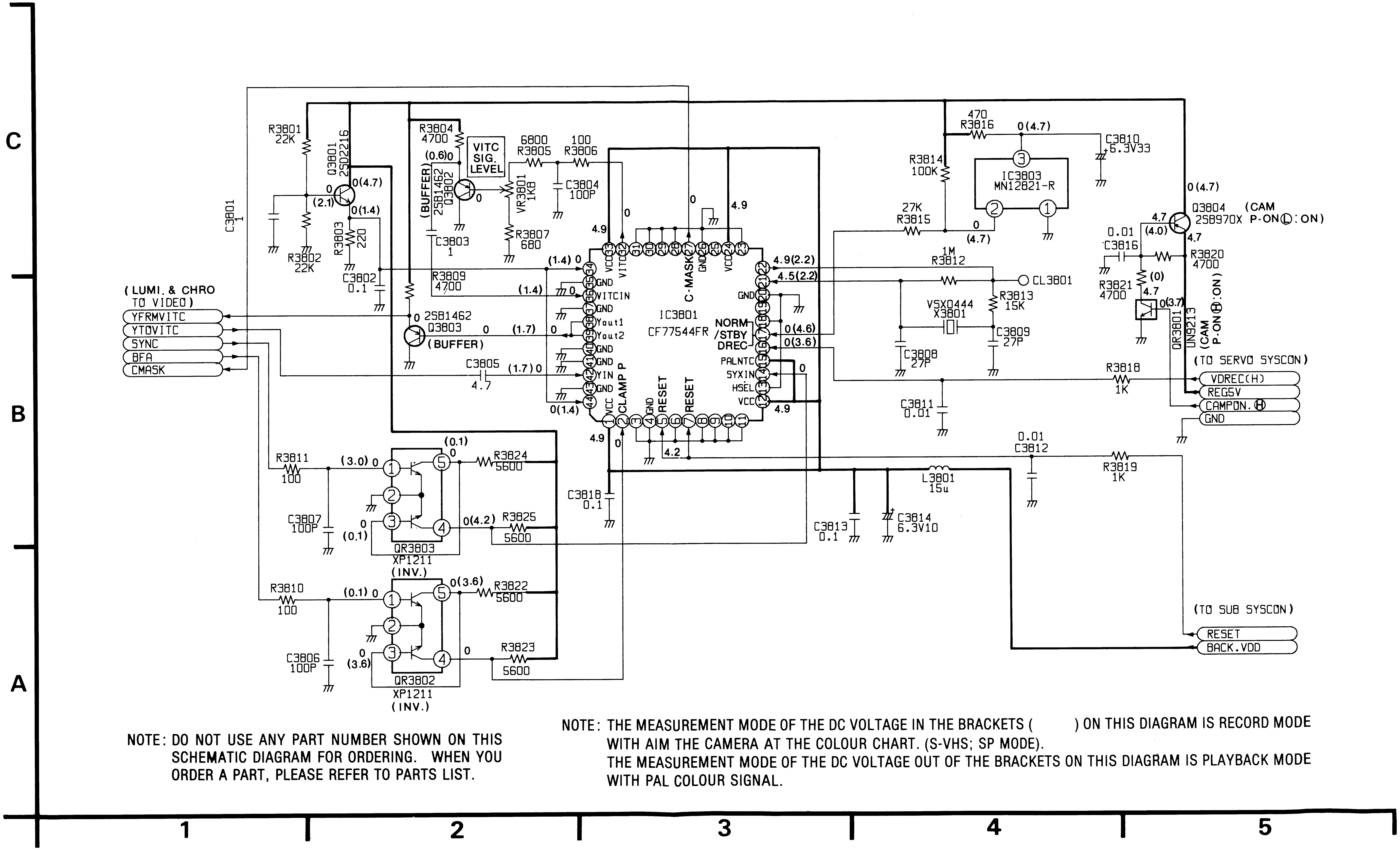


TO SYSTEM CTL & SERVO
H/N
FMMUTE
VEE Ⓗ
AHSW
LP Ⓗ
IC4501
VEFH27B
TL4504
PAL Ⓗ
EE Ⓗ
FM IN
FM OUT
LP Ⓗ
FM MUTE
FM REC CURR
Lch-FO ADJ
Rch-FO ADJ
Lch Dev./PB Lev
Rch Dev/PB Lev
UN9110
UN9211
UN9113
MA110
MA133
AN3938
VCO
AL
MUTE
RF AMP
RF LIM
PC
R/P
FM/LIN
Enve.
ALPF
HOLD
AMP
GND(FM)
0dB
4dB
X2
M.M
DOC.
L.S.
LPF
CCR
OUTPUT SEL
AGC
AGC DET
AUDIO LPF
L/R/S
Hi-Fi/MIX/N
VREF H
VREF
NS
Rch
GND
FM·MUTE Ⓗ
Hi-Fi/MIX /NORMAL
Vcc 3.3V(NR)
Vcc 5V
Vcc 5V (FM)
LINE IN(L)
LINE OUT(L)
HP OUT(L)
HP OUT(R)
LINE OUT (R)
LINE IN (N)
LINE IN (R)
Vcc 3.3V (NR)
2SD2345
CL4501
CL4502
CL4503
CL4505
TO LUMI. & CHRO.
PBFM
RECFM
A OUT (L)
A GND
A OUT (R)
FL4501
VLF0934
1.4MHZ B.P.F
FL4502
VLF0935
1.8MHZ B.P.F
L4504 56u
L4502 100μ
L4503 100u
VR4501 2KB
VR4502 2KB
R4501 1K
R4502 1K
R4503 1K
R4504 680
R4506 680
R4511 33K
R4513 33K
R4515 1K
R4516 47K
R4517 1K
R4518 1K
C4501 4V47
C4502 4V47
C4503 16V10
C4504 16V10
C4507 1000P
C4508 470P
C4509 0.01
C4511 6V47
C4513 16V3.3
C4515 4V47
C4516 6V22
C4517 6V33
C4518 4V47
C4519 5600P
C4520 5600P
C4521 10V10
C4523 33P
C4524 22P
C4525 180P
TO SYSTEM CTL & SERVO
REG 3.5V
REG 5V
GND
TO LIN AUDIO
AUDIO (L)
AUDIO (N)
AUDIO (R)
AGND
REG 5V
FM 5V
FM 3.5V
REG 5V
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS (   ) ON THIS DIAGRAM IS RECORD MODE. (SP MODE).
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE.

## 3-22. VITC SCHEMATIC DIAGRAM


C
B
A
1
2
3
4
5
R3801
22K
Q3801
2SD2216
0(4.7)
(2.1)
0(1.4)
C3801
1
R3802
22K
R3803
220
C3802
0.1
R3804
4700
(0.6)0
(BUFFER)
2SB1462
Q3802
VITC
SIG.
LEVEL
VR3801
1KB
6800
R3805
100
R3806
C3804
100P
R3807
680
C3803
1
R3809
4700
(LUMI. & CHRO
TO VIDEO)
YFRMVITC
YTOVITC
SYNC
BFA
CMASK
2SB1462
Q3803
(BUFFER)
C3805
4.7
(1.7)0
(1.4) 0
(1.4)
0(1.4)
VCC
VITC
GND
VITCIN
Yout1
Yout2
YIN
C-MASK
GND
VCC
IC3801
CF77544FR
NORM
/STBY
DREC
PALNTC
SYXIN
HSEL
VCC
CLAMP P
RESET
4.9(2.2)
4.5(2.2)
0(4.6)
0(3.6)
4.9
4.2
R3811
100
(3.0) 0
C3807
100P
(0.1)
QR3803
XP1211
(INV.)
R3824
5600
0(4.2)
R3825
5600
R3810
100
(0.1) 0
C3806
100P
(3.6)
QR3802
XP1211
(INV.)
0(3.6)
R3822
5600
R3823
5600
C3818
0.1
470
R3816
0(4.7)
C3810
6.3V33
R3814
100K
IC3803
MN12821-R
27K
R3815
(4.7)
1M
R3812
CL3801
VSX0444
X3801
R3813
15K
C3808
27P
C3809
27P
C3811
0.01
0.01
C3812
L3801
15u
C3813
0.1
C3814
6.3V10
R3819
1K
Q3804
2SB970X
(CAM
P·ON(L):ON)
0(4.7)
4.7
(4.0)
0.01
C3816
R3820
4700
R3821
4700
(0)
4.7
0(3.7)
QR3801
UN9213
(CAM
P·ON(H):ON)
(TO SERVO SYSCON)
R3818
1K
VDREC(H)
REG5V
CAMPON.(H)
GND
(TO SUB SYSCON)
RESET
BACK.VDD

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE WITH AIM THE CAMERA AT THE COLOUR CHART. (S-VHS; SP MODE).
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.

Back Page:
Hi-Fi AUDIO Section

# SYSTEM CONTROL & SERVO ICs VOLTAGE CHART

| REF. NO. | IC6001 | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| STOP | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 | 0 | 3.7 | 3.7 | 3.7 | 0 | 3.6 | 0 | 3.7 | 1.0 | 3.7 | 3.7 | 3.7 | 0 | 0 | 0 |
| REC/PLAY | 3.7 | 3.7 | 3.7 | 0 | 0 | 0 | 3.7 | 3.6 | 3.7 | 0 | 3.6 | 0 | 3.7 | 1.0 | 3.7 | 1.9 | 3.7 | 3.7 | 3.7 | 3.7 |
| F.F. | 3.7 | 3.7 | 3.4 | 3.7 | 3.7 | 0 | 3.7 | 3.6 | 3.7 | 0 | 3.6 | 0 | 3.7 | 1.0 | 3.7 | 3.7 | 0 | 0 | 0 | 0 |
| REF. NO. | IC6001 | | | | | | | | | | | | | | | | | | | |
| MODE | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| STOP | 0.1 | 0.1 | 1.8 | 0 | 3.7 | 0.2 | 0 | 0.5 | 0 | 3.6 | 3.1 | 0.4 | 0 | 3.7 | 3.7 | 3.7 | 3.7 | 1.9 | 1.9 | 0 |
| REC/PLAY | 0.5 | 0.4 | 1.8 | 0 | 3.7 | 0 | 0 | 0.5 | 0 | 0.1 | 3.1 | 2.9 | 0.1 | 3.7 | 3.7 | 0 | 3.7 | 0 | 1.9 | 0 |
| F.F. | 0 | 0 | 1.8 | 0 | 3.6 | 0 | 0 | 0.5 | 0 | 3.7 | 3.1 | 0 | 0.1 | 3.7 | 3.7 | 3.7 | 3.7 | 0 | — | 0 |
| REF. NO. | IC6001 | | | | | | | | | | | | | | | | | | | |
| MODE | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| STOP | 1.8 | 1.7 | 1.9 | 0 | 3.7 | 3.7 | 3.8 | 0 | 3.7 | 0 | 0 | 3.5 | 3.5 | 3.3 | 3.5 | 0 | 0.5 | 2.4 | 3.7 | 3.7 |
| REC/PLAY | 1.7 | 1.7 | 1.8 | 0 | 0 | 3.7 | 0 | 0.7 | 0.2 | 1.9 | 1.9 | 3.5 | 3.4 | 3.3 | 3.5 | 0 | 0.5 | 0 | 3.7 | 3.7 |
| F.F. | 1.7 | 1.7 | 1.8 | 0 | 0 | 3.7 | 3.7 | 0 | 0 | 3.7 | 0 | 3.6 | 3.5 | 3.3 | 3.5 | 0 | 0.5 | 0 | 0 | 0 |
| REF. NO. | IC6001 | | | | | | | | | | | | | | | | | | | |
| MODE | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| STOP | 0 | 0 | 3.7 | 0.1 | 3.7 | 0 | 0 | 3.7 | 1.8 | 0.1 | 3.7 | 0.1 | 3.3 | 0 | 1.9 | 3.5 | 0 | 0 | 1.9 | 1.9 |
| REC/PLAY | 0 | 0 | 1.9 | 0 | 1.9 | 0 | 0 | 3.7 | 1.8 | 0.1 | 0.9 | 1.8 | 1.9 | 0 | 1.8 | 1.8 | 0.1 | 0 | 1.9 | 1.9 |
| F.F. | 0 | 0 | 1.9 | 0 | 1.9 | 0 | 0 | 3.7 | 1.9 | 0.1 | 0.9 | 1.8 | 1.7 | 0 | 1.9 | 1.8 | 0.1 | 0 | 1.9 | 1.9 |
| REF. NO. | IC6001 | | | | | | | | | | | | | | | | | | | |
| MODE | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
| STOP | 1.7 | 2.0 | 3.7 | 0 | 0 | 0 | 1.9 | 1.9 | 0 | 0 | 1.8 | 0 | 0.1 | 3.3 | 3.7 | 0.1 | 3.5 | 0 | 3.7 | 0 |
| REC/PLAY | 1.7 | 2.0 | 3.7 | 1.5 | 2.1 | 0 | 1.9 | 1.8 | 0 | 0 | 1.9 | 0 | 1.6 | 2.1 | 3.7 | 0 | 3.5 | 0 | 3.7 | 0 |
| F.F. | 1.9 | 1.8 | 3.7 | 0 | 0 | 0 | 1.9 | 1.9 | 0 | 0 | 1.8 | 0 | 1.5 | 2.1 | 3.7 | 0 | 3.5 | 0 | 3.7 | 0 |
| REF. NO. | IC6001 | | | | | | | | | | | | | | | | | | | |
| MODE | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 |
| STOP | 0 | 3.4 | 0 | 0 | 0 | 3.7 | 4.1 | 0 | 0 | 3.7 | 3.7 | 3.6 | 3.5 | 3.7 | 3.6 | 3.7 | 3.7 | 0 | 3.7 | 3.7 |
| REC/PLAY | 0 | 3.3 | 0 | 0 | 0 | 3.7 | 4.1 | 0 | 3.7 | 0 | 3.7 | 3.6 | 3.4 | 3.7 | 3.6 | 3.7 | 3.7 | 0 | 3.7 | 3.7 |
| F.F. | 0 | 3.4 | 0 | 0 | 0 | 3.7 | 4.1 | 0 | 0 | 0 | 3.7 | 3.6 | 3.5 | 3.7 | 3.6 | 3.7 | 3.7 | 0 | 3.7 | 3.7 |
| REF. NO. | IC6001 | | | | | | | | | | | | | | | | | | | |
| MODE | 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | | | | | | | | | | | | |
| STOP | 0.1 | 0.1 | 3.7 | 0 | 0 | 3.7 | 0.1 | 0.1 | | | | | | | | | | | | |
| REC/PLAY | 3.6 | 0 | 0 | 0 | 0 | 3.7 | 3.7 | 0 | | | | | | | | | | | | |
| F.F. | 3.6 | 3.7 | 3.7 | 0 | 0 | 3.7 | 3.7 | 0 | | | | | | | | | | | | |
| REF. NO. | IC6002 | | | | | | | | | | IC6003 | | | | | | | | | |
| MODE | 1 | 2 | 3 | | | | | | | | 1 | 2 | 3 | | | | | | | |
| STOP | 0 | 6.2 | 3.8 | | | | | | | | 0 | 4.9 | 3.7 | | | | | | | |
| REC/PLAY | 0 | 6.0 | 3.8 | | | | | | | | 0 | 4.9 | 3.7 | | | | | | | |
| F.F. | 0 | 6.0 | 3.8 | | | | | | | | 0 | 4.9 | 3.7 | | | | | | | |
| REF. NO. | IC6004 | | | | | | | | | | IC6005 | | | | | | | | | |
| MODE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 1 | 2 | 3 | 4 | 5 | | | | | |
| STOP | 0.1 | 0 | 0.1 | 0 | 0 | 6.2 | 4.1 | 0.1 | 4.2 | 6.2 | 3.5 | 3.5 | 0 | 3.7 | 3.5 | | | | | |
| REC/PLAY | 0 | 0 | 0 | 0 | 0.2 | 1.0 | 4.1 | 2.6 | 4.1 | 6.0 | 3.4 | 0 | 0 | 3.7 | 3.5 | | | | | |
| F.F. | 1.0 | 0 | 0 | 0 | 0.9 | 6.0 | 4.1 | 2.6 | 4.1 | 6.0 | 3.5 | 3.5 | 0 | 3.7 | 3.5 | | | | | |
| REF. NO. | IC6006 | | | | | | | | | | IC6007 | | | | | | | | | |
| MODE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | |
| STOP | 4.6 | 1.9 | 3.6 | 0 | 3.4 | 3.0 | 4.8 | 0 | | | 3.5 | 3.1 | 2.9 | 0 | 2.1 | 2.9 | 3.2 | 4.8 | | |
| REC/PLAY | 0 | 0 | 3.6 | 0 | 3.4 | 3.0 | 3.5 | 4.8 | | | 2.5 | 0.5 | 0.5 | 0 | 2.0 | 2.9 | 3.2 | 4.7 | | |
| F.F. | 4.6 | 1.9 | 3.6 | 0 | 3.4 | 3.0 | 3.5 | 4.8 | | | 1.8 | 0.5 | 0.5 | 0 | 3.6 | 1.7 | 1.6 | 3.1 | | |
| REF. NO. | IC6008 | | | | | | | | | | IC6009 | | | | | | | | | |
| MODE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | |
| STOP | 3.7 | 0 | 3.8 | 0 | 0 | 0 | 3.7 | 2.3 | | | 0 | 0 | 0 | 0 | 3.7 | 3.7 | 3.8 | 3.8 | | |
| REC/PLAY | 0 | 0 | 3.7 | 0 | 0 | 3.8 | 3.8 | 3.8 | | | 0 | 0 | 0 | 0 | 3.7 | 3.7 | 3.8 | 3.8 | | |
| F.F. | 0 | 0 | 3.7 | 0 | 0 | 3.5 | 3.8 | 3.8 | | | 0 | 0 | 0 | 0 | 3.7 | 3.7 | 3.8 | 3.8 | | |
| REF. NO. | IC6010 | | | | | | | | | | IC6011 | | | | | | | | | |
| MODE | 1 | 2 | 3 | 4 | 5 | | | | | | 1 | 2 | 3 | 4 | 5 | | | | | |
| STOP | 3.5 | 3.6 | 0 | 3.3 | 3.5 | | | | | | 3.6 | 3.3 | 0 | 3.3 | 3.5 | | | | | |
| REC/PLAY | 3.5 | 3.6 | 0 | 3.3 | 3.5 | | | | | | 3.6 | 3.3 | 0 | 3.3 | 0 | | | | | |
| F.F. | 3.5 | 3.6 | 0 | 3.3 | 3.5 | | | | | | 0 | 3.3 | 0 | 3.3 | 6.0 | | | | | |
| REF. NO. | IC6012 | | | | | | | | | | IC6013 | | | | | | | | | |
| MODE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | 1 | 2 | 3 | | | | | | | |
| STOP | 4.6 | 1.9 | 3.6 | 0 | 4.6 | 2.4 | 3.5 | 4.8 | | | 0 | 6.2 | 4.9 | | | | | | | |
| REC/PLAY | 4.6 | 1.9 | 3.6 | 0 | 4.6 | 2.4 | 3.4 | 4.7 | | | 0 | 6.0 | 4.9 | | | | | | | |
| F.F. | 4.6 | 1.9 | 3.6 | 0 | 4.6 | 2.4 | 3.5 | 4.8 | | | 0 | 6.0 | 4.9 | | | | | | | |

# SYSTEM CONTROL & SERVO TRANSISTORs VOLTAGE CHART

| REF. NO. | Q6001 | | | Q6201 | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODE | E | C | B | E | C | B | | | | | | | | | | | | |
| STOP | 0.1 | 6.1 | 0 | 3.7 | 3.7 | 3.2 | | | | | | | | | | | | |
| REC/PLAY | 0.1 | 0 | 0 | 0 | 0 | 3.2 | | | | | | | | | | | | |
| F.F. | 0.4 | 6.0 | 0.3 | 6.3 | 7.8 | 0.2 | | | | | | | | | | | | |

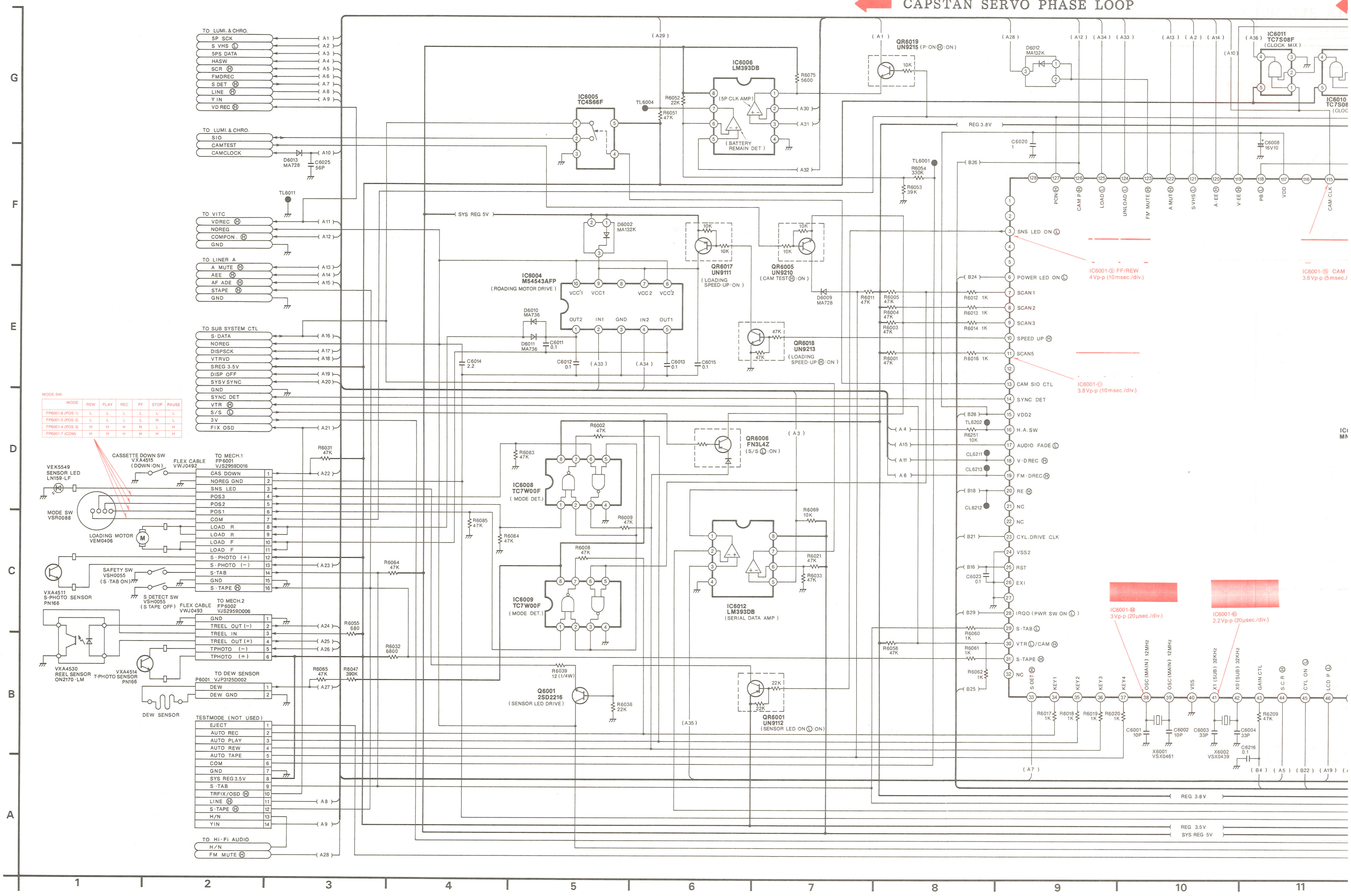
| REF. NO. | QR6001 | | | QR6002 | | | | | | QR6003 | | | | | | QR6005 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODE | E | C | B | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | | E | C | B |
| STOP | 3.5 | 0 | 3.7 | 0 | 3.9 | 2.4 | 3.9 | 4.5 | 4.5 | 3.7 | 0.4 | 6.6 | 1.7 | 1.3 | | 3.7 | 3.7 | 0 |
| REC/PLAY | 3.5 | 0 | 3.7 | 4.7 | 4.1 | 4.7 | 4.7 | 4.0 | 4.7 | 3.7 | 0 | 0 | 0 | 0 | | 3.7 | 3.7 | 0 |
| F.F. | 3.5 | 0.3 | 3.4 | 4.7 | 4.0 | 4.7 | 4.7 | 4.0 | 4.8 | 3.7 | 0 | 6.4 | 0 | 0.1 | | 3.7 | 3.7 | 0 |

| REF. NO. | QR6006 | | | QR6010 | | | QR6013 | | | QR6014 | | | QR6015 | | | QR6017 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODE | E | C | B | E | C | B | E | C | B | E | C | B | E | C | B | E | C | B |
| STOP | 3.7 | 3.7 | 3.3 | 3.5 | 3.5 | 0 | 0 | 0.2 | 0 | 0 | 4.7 | 0 | 4.7 | 0.4 | 4.7 | 4.8 | 4.1 | 4.7 |
| REC/PLAY | 3.7 | 3.7 | 3.3 | 3.5 | 3.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4.7 | 4.7 | 4.1 | 4.7 | 4.1 | 4.7 |
| F.F. | 3.7 | 3.7 | 3.3 | 3.5 | 3.5 | 0 | 0 | 9.0 | 0 | 0 | 0 | 11.0 | 4.7 | 0.4 | 4.7 | 4.7 | 4.1 | 4.7 |

| REF. NO. | QR6018 | | | QR6019 | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODE | E | C | B | E | C | B | | | | | | | | | | | | |
| STOP | 0 | 4.7 | 0 | 4.6 | 3.2 | 3.7 | | | | | | | | | | | | |
| REC/PLAY | 0 | 4.7 | 0 | 4.6 | 3.2 | 3.7 | | | | | | | | | | | | |
| F.F. | 0 | 4.7 | 0 | 4.6 | 3.2 | 3.7 | | | | | | | | | | | | |

# 3-23. SYSTEM CONTROL & SERVO SCHEMATIC DIAGRAM

CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP

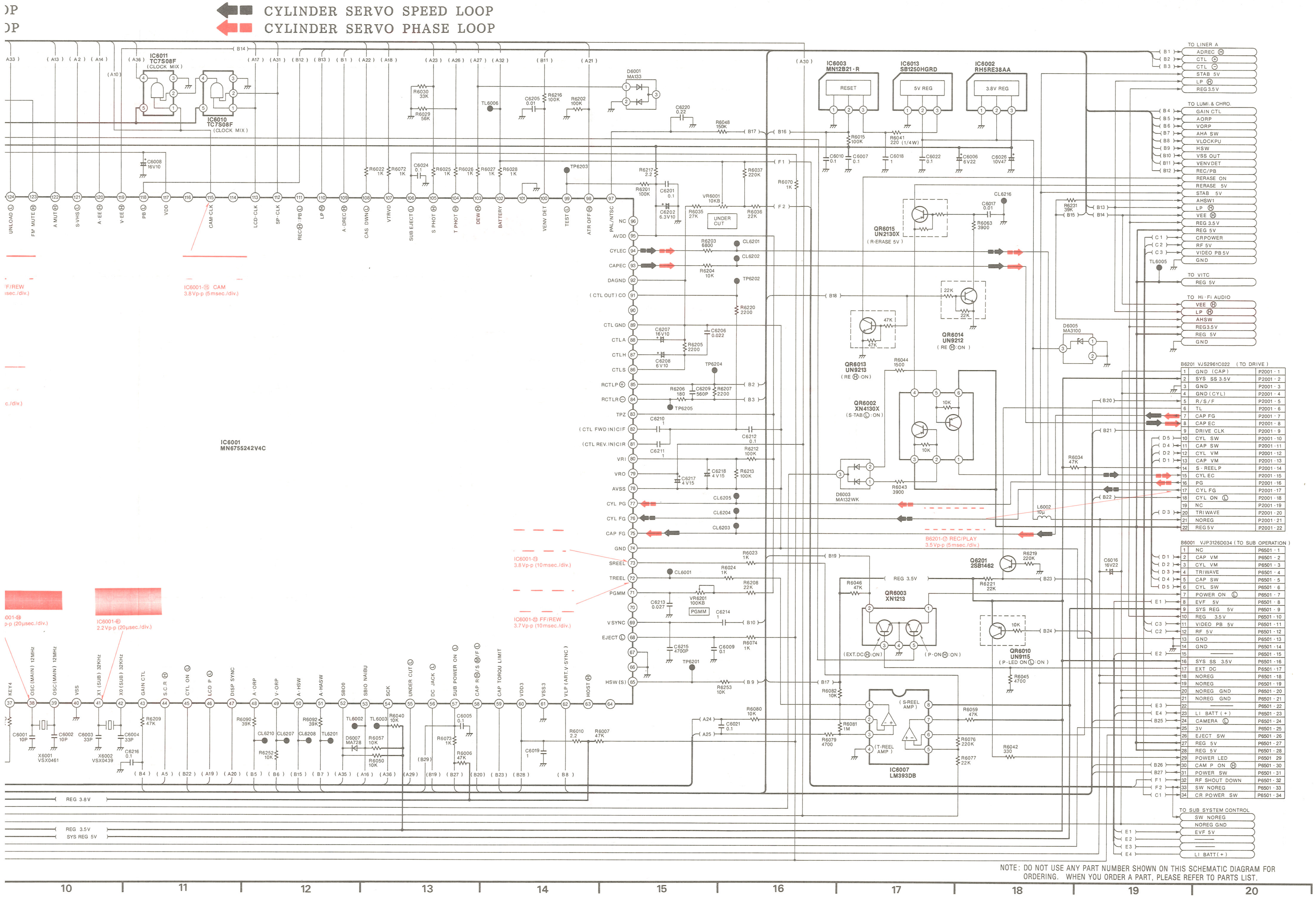

TO LUMI. & CHRO.
SP SCK
S VHS Ⓛ
SPS DATA
HASW
SCR Ⓗ
FMDREC
S DET Ⓗ
LINE Ⓗ
Y IN
VD REC Ⓗ
SIO
CAMTEST
CAMCLOCK
D6013 MA728
C6025 56P
TL6011
TO VITC
VDREC Ⓗ
NOREG
COMPON. Ⓗ
GND
TO LINER A
A MUTE Ⓗ
AEE Ⓗ
AF ADE Ⓗ
STAPE Ⓗ
TO SUB SYSTEM CTL
S·DATA
DISPSCK
VTRVD
SREG 3.5V
DISP OFF
SYSV SYNC
SYNC DET
VTR Ⓗ
S/S Ⓛ
3V
FIX OSD
CASSETTE DOWN SW VXA4515 (DOWN:ON)
FLEX CABLE VWJ0492
TO MECH.1 FP6001 VJS2959D016
VEK5549 SENSOR LED LN159-LF
MODE SW VSR0088
LOADING MOTOR VEM0406
CAS DOWN
NOREG GND
SNS LED
POS3
POS2
POS1
COM
LOAD R
LOAD F
S·PHOTO (+)
S·PHOTO (−)
S·TAB
S·TAPE Ⓗ
SAFETY SW VSH0055 (S·TAB ON)
VXA4511 S-PHOTO SENSOR PN166
S DETECT SW VSH0055 (S TAPE OFF)
FLEX CABLE VWJ0493
TO MECH.2 FP6002 VJS2959D006
TREEL OUT (−)
TREEL IN
TREEL OUT (+)
TPHOTO (−)
TPHOTO (+)
VXA4530 REEL SENSOR ON2170·LM
VXA4514 T-PHOTO SENSOR PN166
TO DEW SENSOR P6001 VJP3125D002
DEW
DEW GND
DEW SENSOR
TESTMODE (NOT USED)
EJECT
AUTO REC
AUTO PLAY
AUTO REW
AUTO TAPE
SYS REG 3.5V
TRFIX/OSD Ⓗ
TO Hi-Fi AUDIO
H/N
FM MUTE Ⓗ
IC6005 TC4S66F
TL6004
IC6006 LM393DB
(SP CLK AMP)
(BATTERY REMAIN DET)
R6075 5600
R6052 22K
R6051 47K
SYS REG 5V
D6002 MA132K
IC6004 M54543AFP (ROADING MOTOR DRIVE)
VCC1 VCC1 VCC2 VCC2
OUT2 IN1 GND IN2 OUT1
D6010 MA736
D6011 MA736
C6011 0.1
C6012 0.1
C6013 0.1
C6014 2.2
C6015 0.1
QR6017 UN9111 (LOADING SPEED·UP:ON)
QR6005 UN9210 (CAM TEST Ⓗ:ON)
D6009 MA728
QR6018 UN9213 (LOADING SPEED·UP Ⓗ:ON)
QR6019 UN9215 (P·ON Ⓗ:ON)
D6012 MA132K
IC6011 TC7S08F (CLOCK MIX)
IC6010 TC7S08
REG 3.8V
C6020 1
C6008 16V10
TL6001
R6054 330K
R6053 39K
IC6008 TC7W00F (MODE DET.)
IC6009 TC7W00F (MODE DET.)
R6002 47K
R6083 47K
R6085 47K
R6084 47K
R6009 47K
R6008 47K
QR6006 FN3L4Z (S/S Ⓛ:ON)
IC6012 LM393DB (SERIAL DATA AMP)
R6069 10K
R6021 47K
R6033 47K
R6031 47K
R6064 47K
R6055 680
R6032 6800
R6065 47K
R6047 390K
R6039 12 (1/4W)
Q6001 2SD2216 (SENSOR LED DRIVE)
R6038 22K
QR6001 UN9112 (SENSOR LED ON Ⓛ:ON)
R6011 47K
R6005 47K
R6004 47K
R6003 47K
R6001 47K
R6012 1K
R6013 1K
R6014 1K
R6016 1K
TL6202
R6251 10K
CL6211
CL6213
CL6212
C6023 0.1
R6060 1K
R6061 1K
R6062 1K
R6058 47K
R6017 1K
R6018 1K
R6019 1K
R6020 1K
C6001 10P
C6002 10P
C6003 33P
C6004 33P
R6209 47K
C6216 0.1
X6001 VSX0461
X6002 VSX0439
SNS LED ON Ⓛ
POWER LED ON Ⓛ
SCAN1
SCAN2
SCAN3
SPEED UP Ⓗ
SCAN5
CAM SIO CTL
SYNC DET
VDD2
H.A.SW
AUDIO FADE Ⓛ
V·DREC Ⓗ
FM·DREC Ⓗ
RE Ⓗ
NC
CYL.DRIVE CLK
VSS2
RST
EXI
IRQO (PWR SW ON Ⓛ)
S·TAB Ⓛ
VTR Ⓛ/CAM Ⓗ
S·TAPE Ⓗ
PON Ⓗ
CAM P Ⓗ
LOAD Ⓛ
UNLOAD Ⓛ
FM MUTE Ⓗ
A MUT Ⓗ
S·VHS Ⓛ
A·EE Ⓗ
V·EE Ⓗ
PB Ⓛ
VDD
CAM·CLK
S·DET Ⓗ
KEY1
KEY2
KEY3
KEY4
OSC (MAIN) 12MHz
OSC (MAIN) 12MHz
VSS
X1 (SUB) 32KHz
X0 (SUB) 32KHz
GAIN CTL
S.C.R Ⓗ
CYL ON Ⓛ
LCD P Ⓛ
IC6001-ⓐ FF/REW 4Vp-p (10msec./div.)
IC6001-⑮ CAM 3.8Vp-p (5msec./div.)
IC6001-⑪ 3.8Vp-p (10msec./div.)
IC6001-㊳ 3Vp-p (20μsec./div.)
IC6001-㊶ 2.2Vp-p (20μsec./div.)
REG 3.8V
REG 3.5V
SYS REG 5V
G F E D C B A
1 2 3 4 5 6 7 8 9 10 11

MODE SW

| MODE | REW | PLAY | REC | FF | STOP | PAUSE |
|---|---|---|---|---|---|---|
| FP6001-6 (POS 1) | L | L | L | L | L | L |
| FP6001-5 (POS 2) | L | L | L | L | H | L |
| FP6001-4 (POS 3) | H | H | H | H | L | H |
| FP6001-7 (COM) | H | H | H | H | H | H |

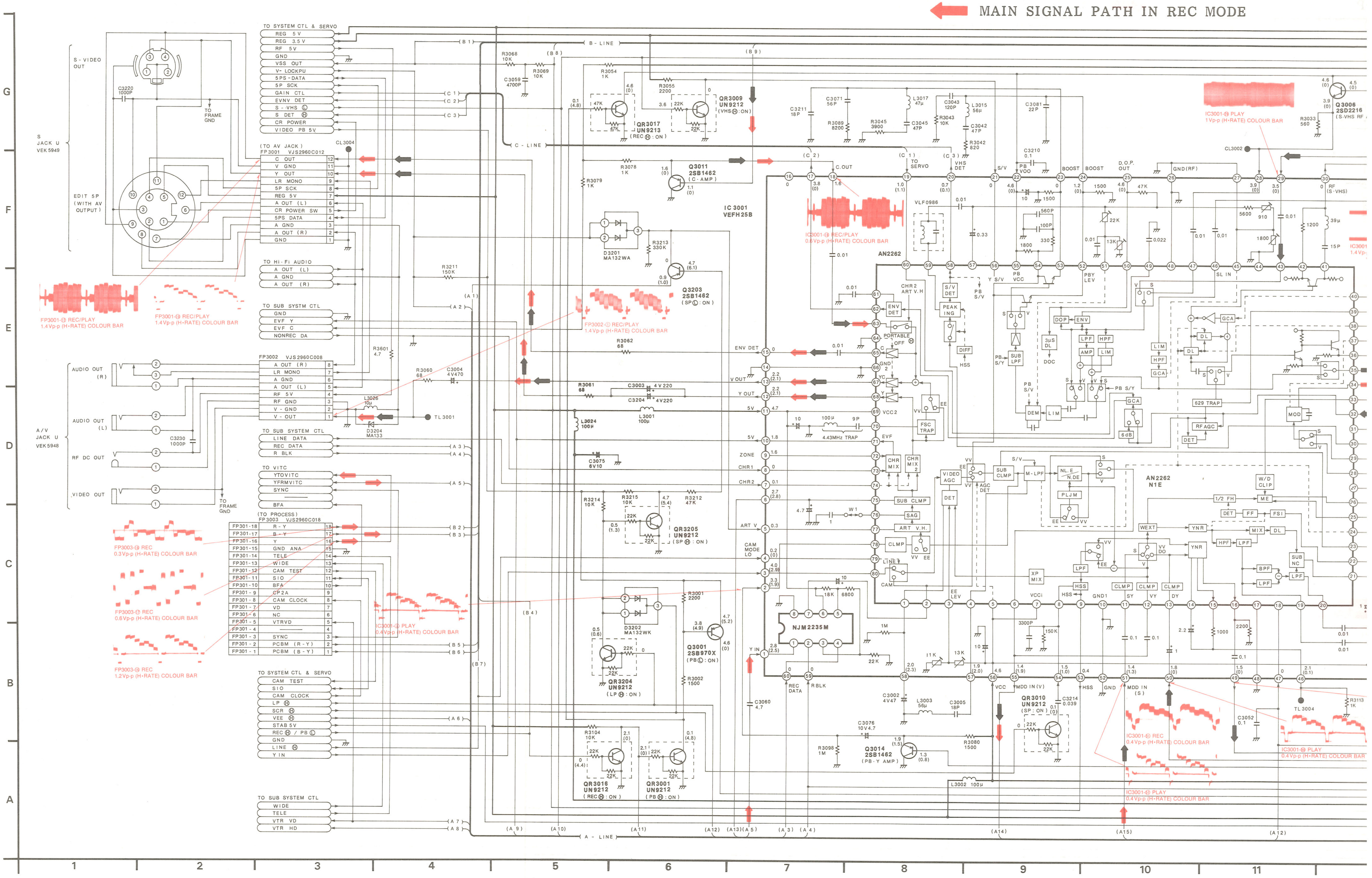
CYLINDER SERVO SPEED LOOP

CYLINDER SERVO PHASE LOOP


IC6011 TC7S08F (CLOCK MIX)
IC6010 TC7S08F (CLOCK MIX)
IC6001 MN6755242V4C
IC6003 MN12B21-R
RESET
IC6013 SB1250HGRD
5V REG
IC6002 RH5RE38AA
3.8V REG
QR6015 UN2130X (R-ERASE 5V)
QR6013 UN9213 (RE Ⓗ:ON)
QR6014 UN9212 (RE Ⓗ:ON)
QR6002 XN4130X (S-TAB Ⓛ:ON)
D6003 MA132WK
D6001 MA133
D6005 MA3100
D6007 MA728
Q6201 2SB1462
QR6003 XN1213 (EXT.DC Ⓗ:ON) (P-ON Ⓗ:ON)
QR6010 UN9115 (P-LED ON Ⓛ:ON)
IC6007 LM393DB (S-REEL AMP) (T-REEL AMP)
UNDER CUT
PGMM
X6001 VSX0461
X6002 VSX0439
IC6001-⑮ CAM 3.8Vp-p (5msec./div.)
IC6001-⑬ 3.8Vp-p (10msec./div.)
IC6001-㉛ FF/REW 3.7Vp-p (10msec./div.)
IC6001-㊶ 2.2Vp-p (20μsec./div.)
B6201-⑦ REC/PLAY 3.5Vp-p (5msec./div.)
UNLOAD
FM MUTE Ⓗ
A MUT Ⓗ
S-VHS Ⓛ
A-EE Ⓗ
V EE Ⓗ
PB Ⓛ
VDD
CAM-CLK
LCD-CLK
SP-CLK
REC Ⓗ · PB Ⓛ
LP Ⓗ
A DREC Ⓗ
CAS DWN Ⓛ
VTRVD
SUB EJECT Ⓛ
S PHOT Ⓗ
T PHOT Ⓗ
DEW Ⓗ
BATTERY
VENV DET
TEST Ⓛ
ATR OFF Ⓗ
PAL/NTSC
NC
AVDD
CYLEC
CAPEC
DAGND
(CTL OUT) CO
CTL GND
CTLA
CTLH
CTLS
RCTLP ⊕
RCTLR ⊖
TPZ
(CTL FWD IN) CIF
(CTL REV. IN) CIR
VRI
VRO
AVSS
CYL PG
CYL FG
CAP FG
GND
SREEL
TREEL
PGMM
V SYNC
EJECT Ⓛ
HSW (S)
KEY4
OSC (MAIN) 12MHz
OSC (MAIN) 12MHz
VSS
X1 (SUB) 32KHz
X0 (SUB) 32KHz
GAIN CTL
S.C.R Ⓗ
CYL ON Ⓛ
LCD P Ⓛ
DISP SYNC
A ORP
V ORP
A-HSW
A-HASW
SBD0
SBIO NAIBU
SCK
UNDER CUT Ⓛ
DC JACK Ⓛ
SUB POWER ON Ⓛ
CAP R Ⓗ/S Ⓗ/F Ⓛ
CAP TORQU LIMIT
VDD3
VSS3
VLP (ART.V SYNC)
HOST Ⓗ
REG 3.8V
REG 3.5V
SYS REG 5V
TO LINER A
ADREC Ⓗ
CTL ⊕
CTL ⊖
STAB 5V
LP Ⓗ
REG3.5V
TO LUMI.& CHRO.
GAIN CTL
AORP
VORP
AHA SW
VLOCKPU
HSW
VSS OUT
VENVDET
REC/PB
RERASE ON
RERASE 5V
STAB 5V
AHSW1
LP Ⓗ
VEE Ⓗ
REG 3.5V
REG 5V
CRPOWER
RF 5V
VIDEO PB 5V
GND
TO VITC
REG 5V
TO Hi-Fi AUDIO
VEE Ⓗ
LP Ⓗ
AHSW
REG3.5V
REG 5V
GND
B6201 VJS2961C022 (TO DRIVE)
1 GND (CAP) P2001-1
2 SYS SS 3.5V P2001-2
3 GND P2001-3
4 GND (CYL) P2001-4
5 R/S/F P2001-5
6 TL P2001-6
7 CAP FG P2001-7
8 CAP EC P2001-8
9 DRIVE CLK P2001-9
10 CYL SW P2001-10
11 CAP SW P2001-11
12 CYL VM P2001-12
13 CAP VM P2001-13
14 S-REELP P2001-14
15 CYL EC P2001-15
16 PG P2001-16
17 CYL FG P2001-17
18 CYL ON Ⓛ P2001-18
19 NC P2001-19
20 TRIWAVE P2001-20
21 NOREG P2001-21
22 REG 5V P2001-22
B6001 VJP3126D034 (TO SUB OPERATION)
1 NC P6501-1
2 CAP VM P6501-2
3 CYL VM P6501-3
4 TRIWAVE P6501-4
5 CAP SW P6501-5
6 CYL SW P6501-6
7 POWER ON Ⓛ P6501-7
8 EVF 5V P6501-8
9 SYS REG 5V P6501-9
10 REG 3.5V P6501-10
11 VIDEO PB 5V P6501-11
12 RF 5V P6501-12
13 GND P6501-13
14 GND P6501-14
15 P6501-15
16 SYS SS 3.5V P6501-16
17 EXT DC P6501-17
18 NOREG P6501-18
19 NOREG P6501-19
20 NOREG GND P6501-20
21 NOREG GND P6501-21
22 P6501-22
23 LI BATT (+) P6501-23
24 CAMERA Ⓛ P6501-24
25 3V P6501-25
26 EJECT SW P6501-26
27 REG 5V P6501-27
28 REG 5V P6501-28
29 POWER LED P6501-29
30 CAM P ON Ⓗ P6501-30
31 POWER SW P6501-31
32 RF SHOUT DOWN P6501-32
33 SW NOREG P6501-33
34 CR POWER SW P6501-34
TO SUB SYSTEM CONTROL
SW NOREG
NOREG GND
EVF 5V
LI BATT (+)
10
11
12
13
14
15
16
17
18
19
20

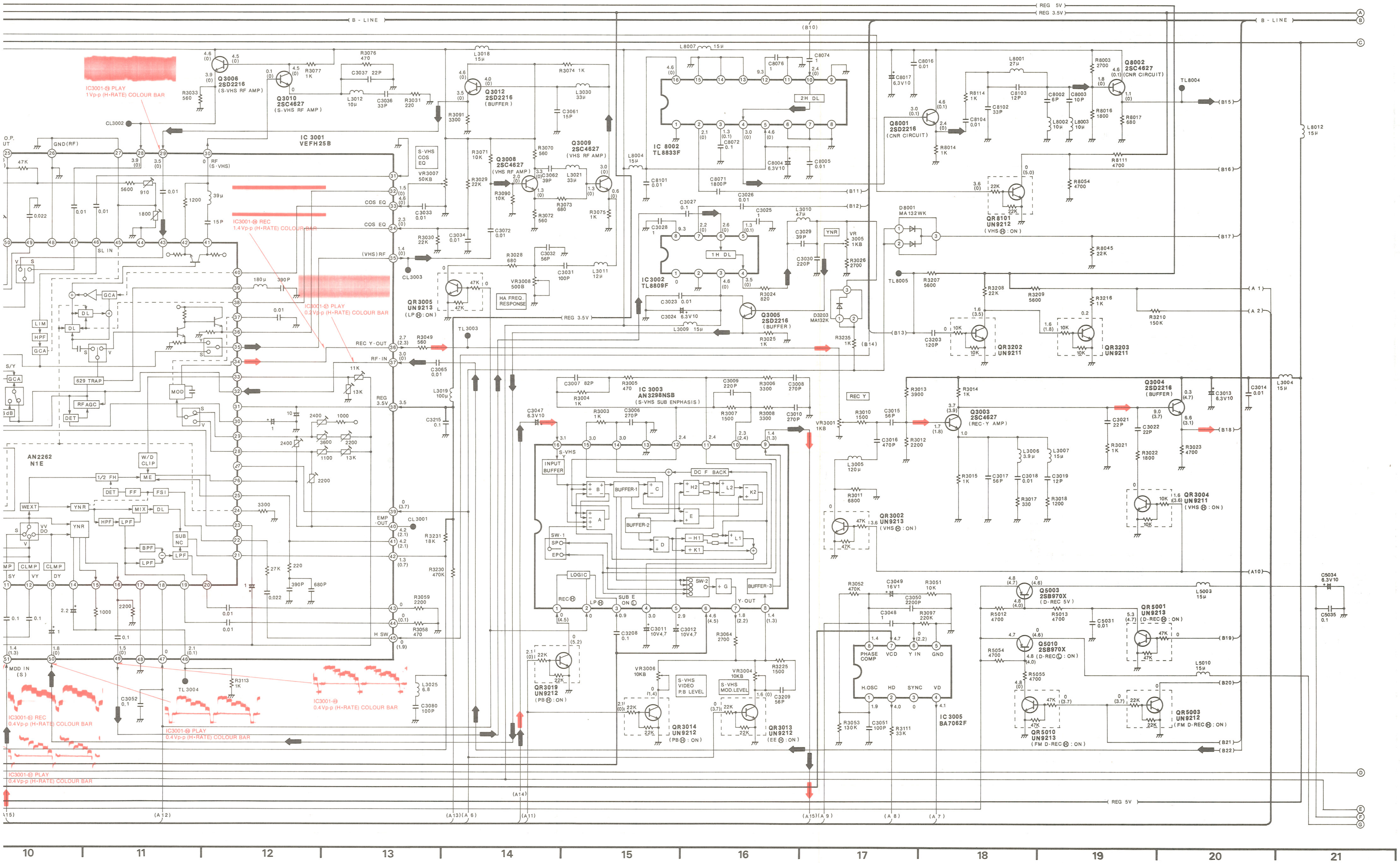
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

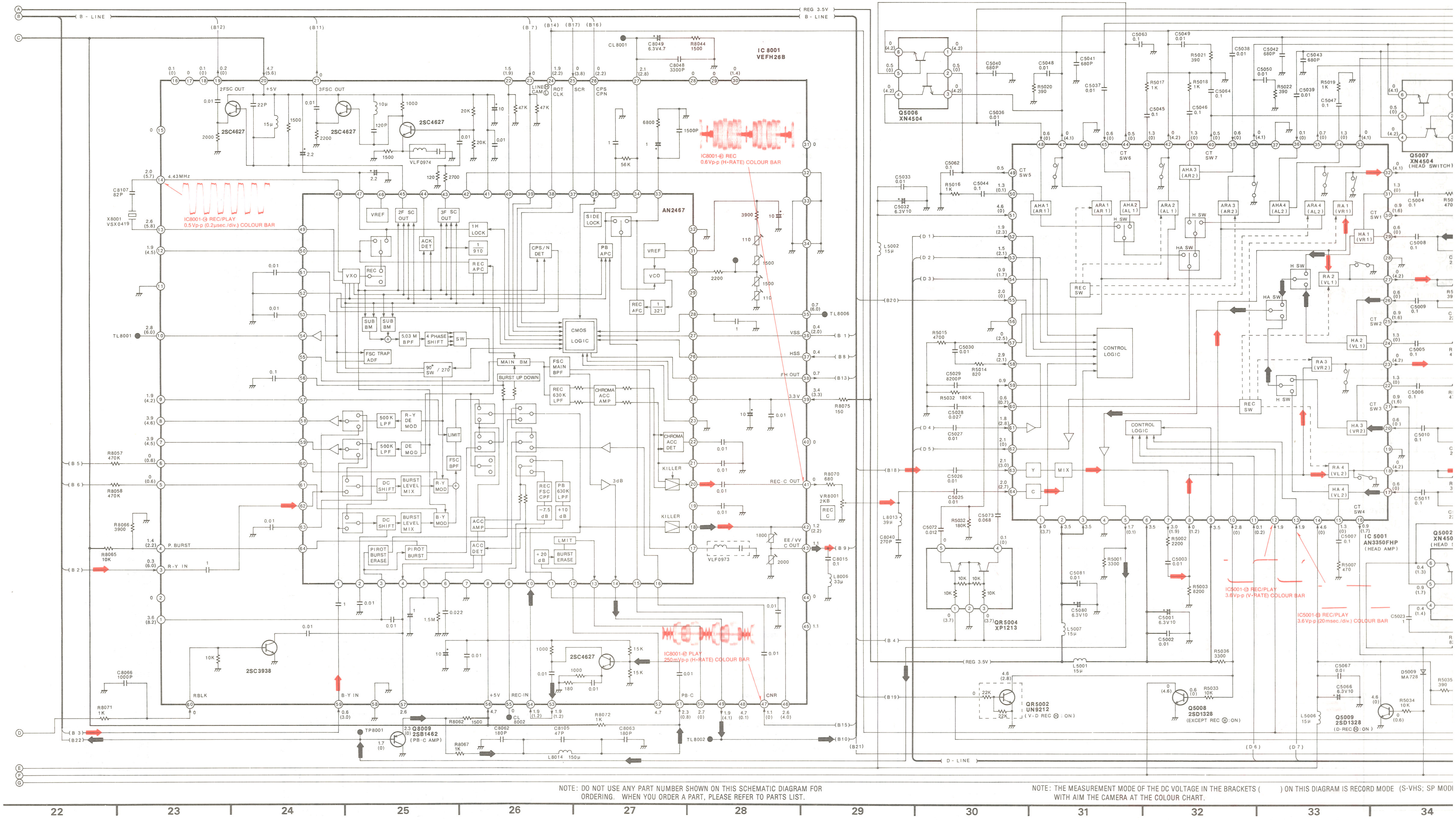
# 3-24. LUMINANCE & CHROMINANCE SCHEMATIC DIAGRAM


MAIN SIGNAL PATH IN REC MODE
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
S-VIDEO OUT
C3220 1000P
TO FRAME GND
S JACK U VEK5949
EDIT 5P (WITH AV OUTPUT)
A/V JACK U VEK5948
AUDIO OUT (R)
AUDIO OUT (L)
RF DC OUT
VIDEO OUT
C3230 1000P
TO SYSTEM CTL & SERVO
REG 5V
REG 3.5V
RF 5V
GND
VSS OUT
V-LOCKPU
5PS-DATA
5P SCK
GAIN CTL
EVNV DET
S-VHS
S DET
CR POWER
VIDEO PB 5V
(TO AV JACK)
FP3001 VJS2960C012
C OUT
V GND
Y OUT
LR MONO
5P SCK
REG 5V
A OUT (L)
CR POWER SW
5PS DATA
A GND
A OUT (R)
GND
TO Hi-Fi AUDIO
A OUT (L)
A GND
A OUT (R)
TO SUB SYSTM CTL
GND
EVF Y
EVF C
NONREC DA
FP3002 VJS2960C008
A OUT (R)
LR MONO
A GND
A OUT (L)
RF 5V
RF GND
V-GND
V-OUT
TO SUB SYSTEM CTL
LINE DATA
REC DATA
R BLK
TO VITC
YTOVITC
YFRMVITC
SYNC
BFA
(TO PROCESS)
FP3003 VJS2960C018
R-Y
B-Y
Y
GND ANA
TELE
WIDE
CAM TEST
SIO
BFA
CP2A
CAM CLOCK
VD
NC
VTRVD
SYNC
PCBM (R-Y)
PCBM (B-Y)
TO SYSTEM CTL & SERVO
CAM TEST
SIO
CAM CLOCK
LP
SCR
VEE
STAB 5V
REC / PB
GND
LINE
Y IN
TO SUB SYSTEM CTL
WIDE
TELE
VTR VD
VTR HD
B-LINE
C-LINE
A-LINE
CL3004
CL3002
TL3001
TL3004
IC3001 VEFH25B
AN2262
AN2262 N1E
NJM2235M
Q3011 2SB1462 (C-AMP)
Q3203 2SB1462 (SP : ON)
Q3001 2SB970X (PB : ON)
Q3014 2SB1462 (PB-Y AMP)
Q3006 2SD2216 (S-VHS RF)
QR3009 UN9212 (VHS : ON)
QR3017 UN9213 (REC : ON)
QR3205 UN9212 (SP : ON)
QR3204 UN9212 (LP : ON)
QR3010 UN9212 (SP : ON)
QR3016 UN9212 (REC : ON)
QR3001 UN9212 (PB : ON)
D3201 MA132WA
D3202 MA132WK
D3204 MA133
L3024 100μ
L3001 100μ
L3002 100μ
4.43MHz TRAP
FP3001-⑩ REC/PLAY 1.4Vp-p (H-RATE) COLOUR BAR
FP3001-⑫ REC/PLAY 1.4Vp-p (H-RATE) COLOUR BAR
FP3002-① REC/PLAY 1.4Vp-p (H-RATE) COLOUR BAR
FP3003-⑯ REC 0.3Vp-p (H-RATE) COLOUR BAR
FP3003-⑰ REC 0.6Vp-p (H-RATE) COLOUR BAR
FP3003-⑱ REC 1.2Vp-p (H-RATE) COLOUR BAR
IC3001-⑳ PLAY 0.4Vp-p (H-RATE) COLOUR BAR
IC3001-⑱ REC/PLAY 0.6Vp-p (H-RATE) COLOUR BAR
IC3001-㉙ PLAY 1Vp-p (H-RATE) COLOUR BAR
IC3001-(51) REC 0.4Vp-p (H-RATE) COLOUR BAR
IC3001-(51) PLAY 0.4Vp-p (H-RATE) COLOUR BAR
IC3001-(46) PLAY 0.4Vp-p (H-RATE) COLOUR BAR

Back Page:
SYSTEM CONTROL & SERVO Section

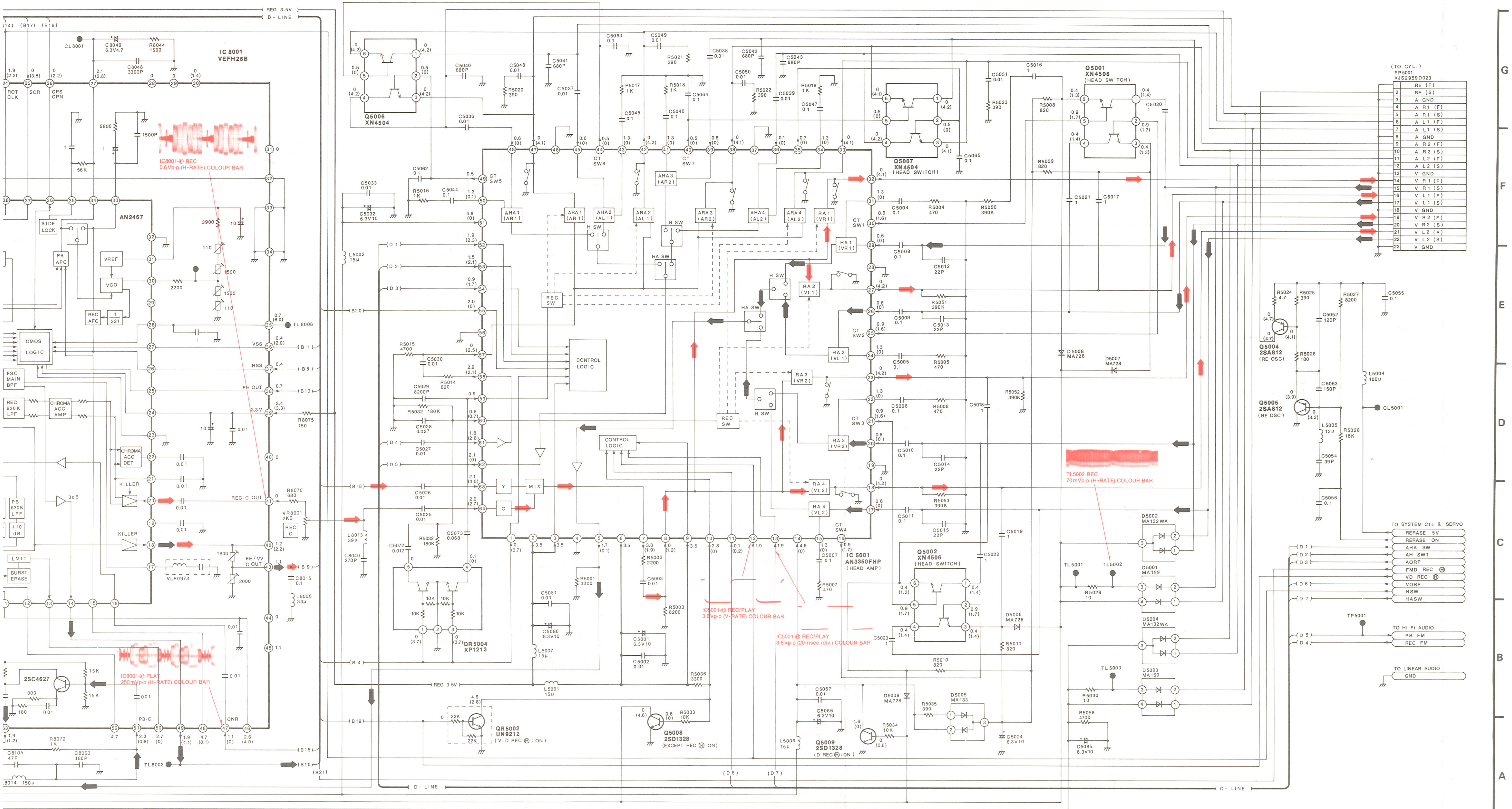
H IN REC MODE ⬅ MAIN SIGNAL PATH IN PLAYBACK MODE


IC 3001 VEFH25B
AN2262 N1E
Q3006 2SD2216 (S-VHS RF AMP)
Q3010 2SC4627 (S-VHS RF AMP)
Q3012 2SD2216 (BUFFER)
Q3008 2SC4627 (VHS RF AMP)
Q3009 2SC4627 (VHS RF AMP)
IC 8002 TL8833F
2H DL
IC3002 TL8809F
1H DL
Q3005 2SD2216 (BUFFER)
QR3005 UN9213 (LP ⊕ : ON)
Q8001 2SD2216 (CNR CIRCUIT)
Q8002 2SC4627 (CNR CIRCUIT)
QR8101 UN9212 (VHS ⊕ : ON)
D8001 MA132WK
D3203 MA132K
QR3202 UN9211
QR3203 UN9211
IC 3003 AN3298NSB (S-VHS SUB ENPHASIS)
Q3004 2SD2216 (BUFFER)
Q3003 2SC4627 (REC-Y AMP)
QR3004 UN9211 (VHS ⊕ : ON)
QR3002 UN9213 (VHS ⊕ : ON)
QR3019 UN9212 (PB ⊕ : ON)
QR3014 UN9212 (PB ⊕ : ON)
QR3013 UN9212 (EE ⊕ : ON)
IC 3005 BA7062F
Q5003 2SB970X (D-REC 5V)
Q5010 2SB970X
QR5001 UN9213 (D-REC ⊕ : ON)
QR5010 UN9213 (FM D-REC ⊕ : ON)
QR5003 UN9212 (FM D-REC ⊕ : ON)
IC3001-㉙ PLAY 1Vp-p (H-RATE) COLOUR BAR
IC3001-㉘ REC 1.4Vp-p (H-RATE) COLOUR BAR
IC3001-㊴ PLAY 0.2Vp-p (H-RATE) COLOUR BAR
IC3001-㊾ REC 0.4Vp-p (H-RATE) COLOUR BAR
IC3001-㊾ PLAY 0.4Vp-p (H-RATE) COLOUR BAR
IC3001-㊿ PLAY 0.4Vp-p (H-RATE) COLOUR BAR
IC3001-㊹ 0.4Vp-p (H-RATE) COLOUR BAR
REG 5V
REG 3.5V
B-LINE
COS EQ
REC Y-OUT
RF-IN
EMP-OUT
H SW
SL IN
MDD IN (S)
HA FREQ RESPONSE
S-VHS COS EQ
S-VHS VIDEO PB LEVEL
S-VHS MOD.LEVEL
PHASE COMP
VCO
Y IN
GND
H.OSC
HD
SYNC
VD
TL3003
TL3004
TL8004
TL8005
CL3001
CL3002
CL3003
10
11
12
13
14
15
16
17
18
19
20
21


REG 3.5V
B - LINE
D - LINE
IC 8001
VEFH26B
AN2467
2SC4627
2SC3938
Q8009
2SB1462
(PB-C AMP)
TP8001
TL8001
TL8002
TL8006
CL8001
CL8002
X8001
VSX0419
VLF0974
VLF0973
IC8001-⑭ REC/PLAY
0.5Vp-p (0.2μsec./div.) COLOUR BAR
IC8001-㉛ REC
0.6Vp-p (H-RATE) COLOUR BAR
IC8001-㊼ PLAY
250mVp-p (H-RATE) COLOUR BAR
VREF
2F SC OUT
3F SC OUT
ACK DET
1H LOCK
1/910
REC APC
VXO
REC
SUB BM
5.03 M BPF
4 PHASE SHIFT
SW
FSC TRAP ADF
90° SW / 270°
MAIN BM
BURST UP DOWN
FSC MAIN BPF
REC 630K LPF
CHROMA ACC AMP
CPS/N DET
SIDE LOCK
PB APC
CMOS LOGIC
VCO
REC AFC
1/321
500K LPF
R-Y DE MOD
B-Y DE MOD
LIMIT
FSC BPF
DC SHIFT
BURST LEVEL MIX
R-Y MOD
B-Y MOD
ACC AMP
ACC DET
PIROT BURST ERASE
PIROT BURST
+20 dB
BURST ERASE
REC FSC CPF
PB 630K LPF
-7.5 dB
+10 dB
KILLER
CHROMA ACC DET
3dB
P. BURST
R-Y IN
B-Y IN
RBLK
+5V
REC-IN
PB-C
CNR
VSS
HSS
FH OUT
REC-C OUT
EE/VV C OUT
2FSC OUT
3FSC OUT
LINE CAM
ROT CLK
SCR
CPS CPN
4.43MHz
Q5006
XN4504
Q5007
XN4504
(HEAD SWITCH)
IC 5001
AN3350FHP
(HEAD AMP)
Q5002
XN450
QR5004
XP1213
QR5002
UN9212
(V-D REC Ⓗ : ON)
Q5008
2SD1328
(EXCEPT REC Ⓗ : ON)
Q5009
2SD1328
(D-REC Ⓗ : ON)
D5009
MA728
CONTROL LOGIC
REC SW
H SW
HA SW
CT SW1
CT SW2
CT SW3
CT SW4
CT SW5
CT SW6
CT SW7
AHA 1 (AR 1)
AHA 2 (AL 1)
AHA 3 (AR 2)
AHA 4 (AL 2)
ARA 1 (AR 1)
ARA 2 (AL 1)
ARA 3 (AR 2)
ARA 4 (AL 2)
RA 1 (VR 1)
HA 1 (VR 1)
RA 2 (VL 1)
HA 2 (VL 1)
RA 3 (VR 2)
HA 3 (VR 2)
RA 4 (VL 2)
HA 4 (VL 2)
Y
C
MIX
IC5001-⑫ REC/PLAY
3.6Vp-p (V-RATE) COLOUR BAR
IC5001-⑬ REC/PLAY
3.6Vp-p (20msec./div.) COLOUR BAR
L5001
L5002
L5006
L5007
L8006
L8013
L8014
22
23
24
25
26
27
28
29
30
31
32
33
34

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE (S-VHS; SP MOD
WITH AIM THE CAMERA AT THE COLOUR CHART.


REG 3.5V
B - LINE
IC 8001
VEFH26B
AN2467
CMOS LOGIC
SIDE LOCK
PB APC
VREF
VCO
REC AFC
FSC MAIN BPF
REC 630K LPF
CHROMA ACC AMP
CHROMA ACC DET
KILLER
PB 630K LPF
+10 dB
LMIT
BURST ERASE
2SC4627
IC8001-㉛ REC
0.6Vp-p (H-RATE) COLOUR BAR
IC8001-㊽ PLAY
250mVp-p (H-RATE) COLOUR BAR
TL8006
TL8002
REC-C OUT
EE / VV C OUT
FH OUT
VSS
HSS
CNR
VLF0973
Q5006
XN4504
Q5007
XN4504
(HEAD SWITCH)
Q5001
XN4506
(HEAD SWITCH)
Q5002
XN4506
(HEAD SWITCH)
IC 5001
AN3350FHP
(HEAD AMP)
CONTROL LOGIC
REC SW
H SW
HA SW
CT SW1
CT SW2
CT SW3
CT SW4
CT SW5
CT SW6
CT SW7
MIX
QR5004
XP1213
QR5002
UN9212
( V-D REC Ⓗ : ON)
Q5008
2SD1328
(EXCEPT REC Ⓗ : ON)
Q5009
2SD1328
( D-REC Ⓗ : ON )
Q5004
2SA812
(RE OSC)
Q5005
2SA812
(RE OSC)
IC5001-⑬ REC/PLAY
3.6Vp-p (V-RATE) COLOUR BAR
IC5001-⑬ REC/PLAY
3.6Vp-p (20msec./div.) COLOUR BAR
TL5002 REC
70mVp-p (H-RATE) COLOUR BAR
TL5001
TL5002
TL5003
TP5001
CL5001
D5001 MA159
D5002 MA132WA
D5003 MA159
D5004 MA132WA
D5005 MA133
D5006 MA728
D5007 MA728
D5008 MA728
D5009 MA728
(TO CYL.)
FP5001
VJS2959D023
1 RE (F)
2 RE (S)
3 A GND
4 A R1 (F)
5 A R1 (S)
6 A L1 (F)
7 A L1 (S)
8 A GND
9 A R2 (F)
10 A R2 (S)
11 A L2 (F)
12 A L2 (S)
13 V GND
14 V R1 (F)
15 V R1 (S)
16 V L1 (F)
17 V L1 (S)
18 V GND
19 V R2 (F)
20 V R2 (S)
21 V L2 (F)
22 V L2 (S)
23 V GND
TO SYSTEM CTL & SERVO
RERASE 5V
RERASE ON
AHA SW
AH SW1
AORP
FMD REC Ⓗ
VD REC Ⓗ
VORP
HSW
HASW
TO Hi-Fi AUDIO
PB FM
REC FM
TO LINEAR AUDIO
GND
D - LINE
G
F
E
D
C
B
A

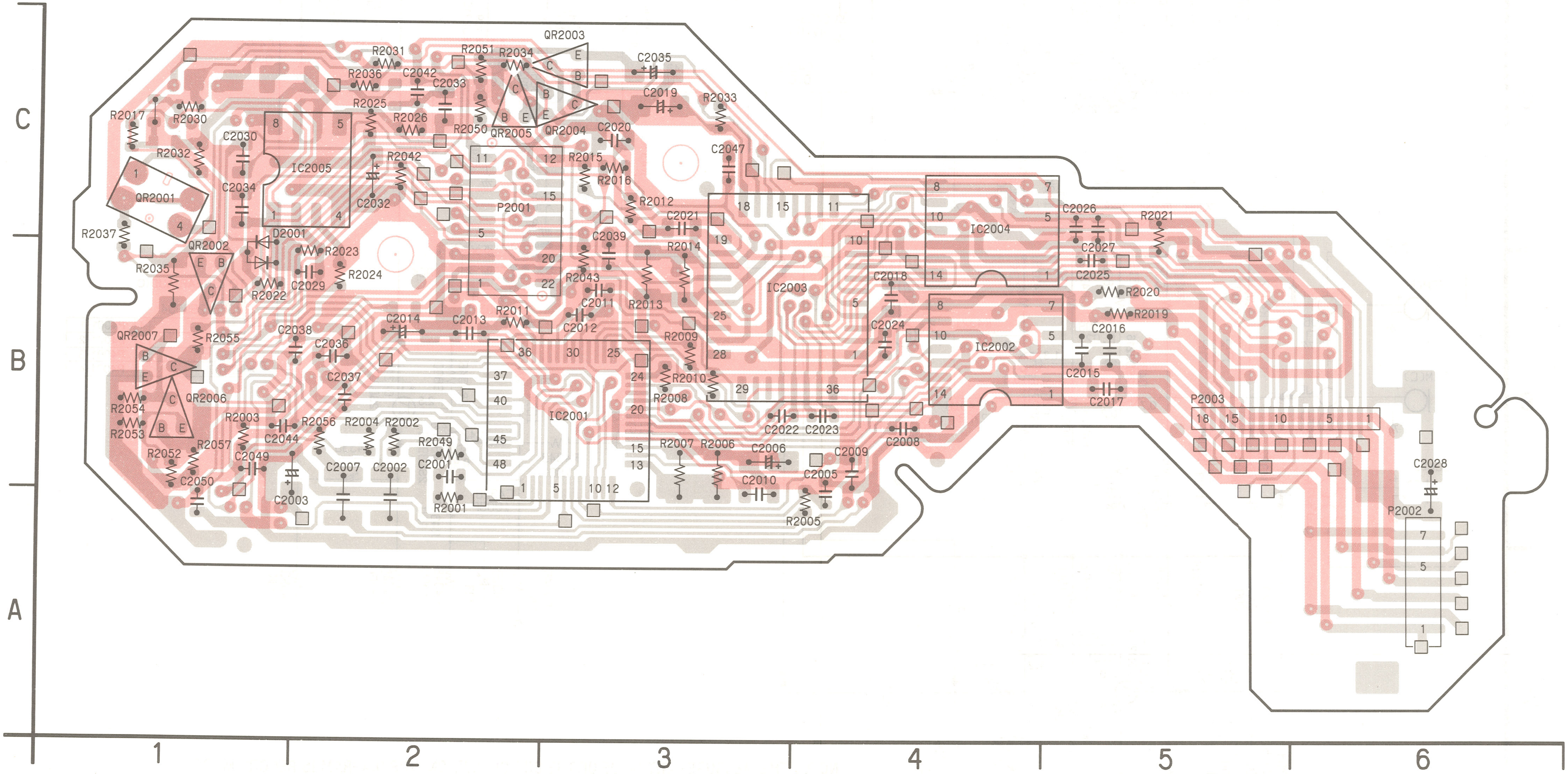
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( ) ON THIS DIAGRAM IS RECORD MODE (S-VHS; SP MODE). THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH AIM THE CAMERA AT THE COLOUR CHART. WITH PAL COLOUR SIGNAL.

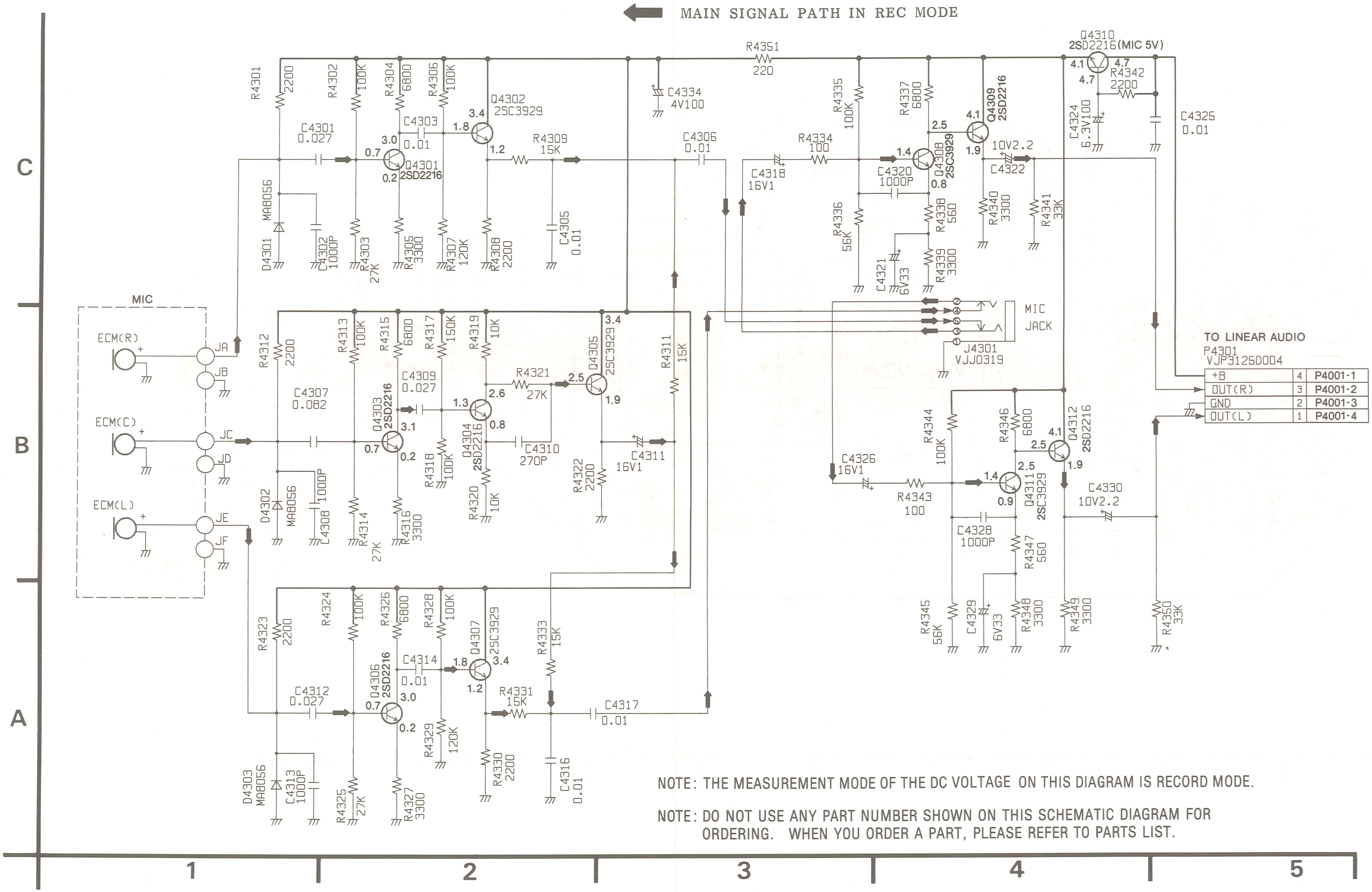
27 28 29 30 31 32 33 34 35 36 37 38

Next Page:
DRIVE Section

## 3-26. DRIVE C.B.A. (VEP02379B)


QR2003
R2031
R2051
R2034
E
C
B
C2035
R2036
C2042
C2033
R2025
C2019
R2033
R2017
R2030
R2026
R2050
QR2005
QR2004
C2020
C2030
IC2005
R2042
R2015
R2016
C2047
R2032
C2034
C2032
P2001
R2012
QR2001
C2021
C2039
IC2003
IC2004
C2026
R2021
C2027
C2025
R2037
D2001
R2023
R2014
C2018
QR2002
R2035
R2024
R2043
R2022
C2029
C2011
R2013
R2020
R2019
C2014
C2013
R2011
C2012
C2024
IC2002
C2016
QR2007
R2055
C2038
C2036
R2009
C2015
C2037
R2010
R2008
C2017
P2003
QR2006
R2054
R2053
R2003
R2056
R2004
R2002
IC2001
C2022
C2023
C2008
C2044
R2049
R2057
R2052
C2049
C2007
C2002
C2001
R2007
R2006
C2006
C2009
C2028
C2050
C2003
R2001
C2010
C2005
R2005
P2002
C
B
A
1
2
3
4
5
6

## 3-27. MIC SCHEMATIC DIAGRAM



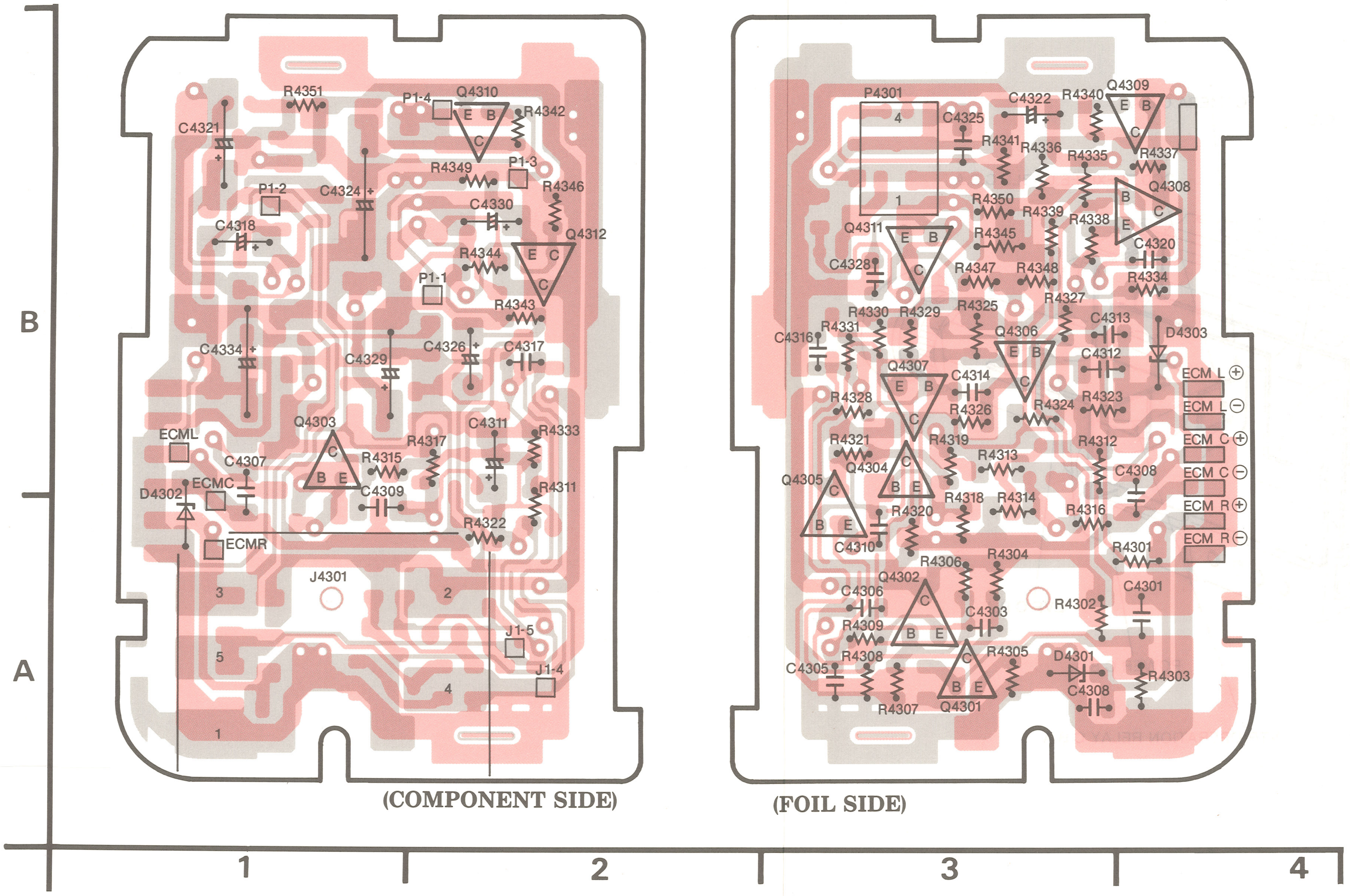
MAIN SIGNAL PATH IN REC MODE
MIC
ECM(R)
ECM(C)
ECM(L)
JA
JB
JC
JD
JE
JF
R4301 2200
R4302 100K
R4303 27K
R4304 6800
R4305 3300
R4306 100K
R4307 120K
R4308 2200
R4309 15K
C4301 0.027
C4302 1000P
C4303 0.01
C4305 0.01
C4306 0.01
D4301 MA8056
Q4301 2SD2216
Q4302 2SC3929
C4334 4V100
R4351 220
Q4310 2SD2216(MIC 5V)
R4342 2200
C4324 6.3V100
C4325 0.01
R4334 100
R4335 100K
R4336 56K
R4337 6800
R4338 560
R4339 3300
R4340 3300
R4341 33K
C4318 16V1
C4320 1000P
C4321 6V33
C4322 10V2.2
Q4308 2SC3929
Q4309 2SD2216
MIC JACK
J4301 VJJ0319
R4311 15K
R4312 2200
R4313 100K
R4314 27K
R4315 6800
R4316 3300
R4317 150K
R4318 100K
R4319 10K
R4320 10K
R4321 27K
R4322 2200
C4307 0.082
C4308 1000P
C4309 0.027
C4310 270P
C4311 16V1
D4302 MA8056
Q4303 2SD2216
Q4304 2SD2216
Q4305 2SC3929
TO LINEAR AUDIO
P4301 VJP3125D004
+B 4 P4001-1
OUT(R) 3 P4001-2
GND 2 P4001-3
OUT(L) 1 P4001-4
R4343 100
R4344 100K
R4345 56K
R4346 6800
R4347 560
R4348 3300
R4349 3300
R4350 33K
C4326 16V1
C4328 1000P
C4329 6V33
C4330 10V2.2
Q4311 2SC3929
Q4312 2SD2216
R4323 2200
R4324 100K
R4325 27K
R4326 6800
R4327 3300
R4328 100K
R4329 120K
R4330 2200
R4331 15K
R4333 15K
C4312 0.027
C4313 1000P
C4314 0.01
C4316 0.01
C4317 0.01
D4303 MA8056
Q4306 2SD2216
Q4307 2SC3929
A
B
C
1
2
3
4
5

NOTE: THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS RECORD MODE.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

Back Page:
DRIVE Section

## 3-28. MIC C.B.A. (VEK5465)


B
A
1
2
3
4
R4351
P1-4
Q4310
E
B
C
R4342
C4321
P1-3
R4349
R4346
P1-2
C4324
C4330
C4318
Q4312
R4344
E
C
C
P1-1
R4343
C4334
C4329
C4326
C4317
ECML
Q4303
C4311
R4333
R4317
C4307
R4315
ECMC
D4302
C4309
R4311
R4322
ECMR
J4301
3
2
5
J1-5
J1-4
4
1
P4301
4
1
C4322
R4340
Q4309
C4325
R4341
R4336
R4335
R4337
Q4308
R4350
R4339
R4338
Q4311
R4345
C4320
C4328
R4347
R4348
R4334
R4327
R4330
R4329
R4325
C4313
D4303
R4331
C4316
Q4306
C4312
Q4307
C4314
ECM L ⊕
ECM L ⊖
R4328
R4326
R4324
R4323
ECM C ⊕
R4321
R4319
R4312
R4313
Q4304
C4308
ECM C ⊖
Q4305
R4318
R4314
R4316
ECM R ⊕
R4320
C4310
R4301
ECM R ⊖
R4306
R4304
Q4302
C4306
C4301
R4302
C4303
R4309
R4308
R4305
D4301
C4305
R4303
C4308
R4307
Q4301

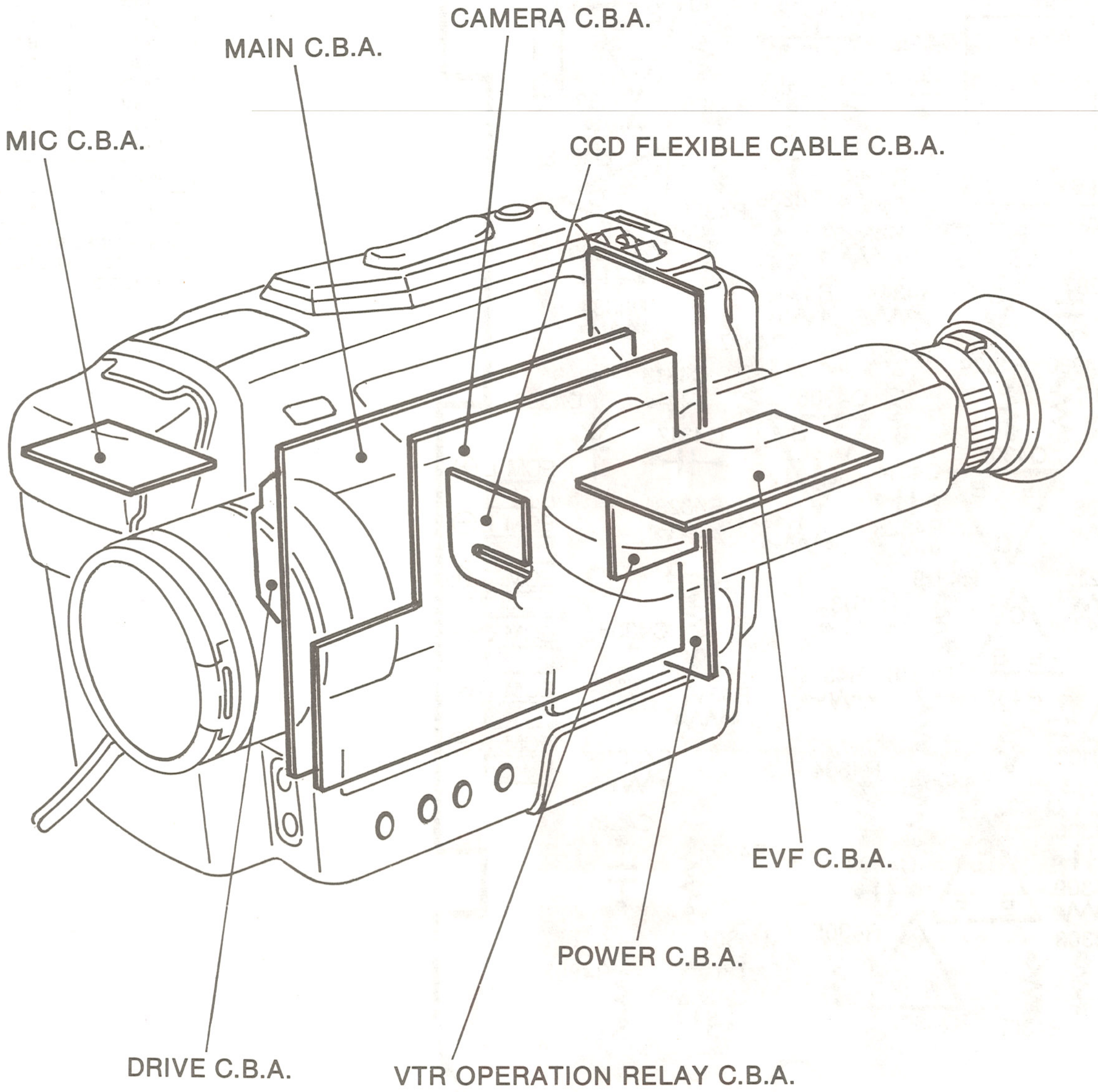
(COMPONENT SIDE)

(FOIL SIDE)

| MIC C.B.A. | |
|---|---|
| **Transistor** | |
| Q4301 | A-3 Ⓕ |
| Q4302 | A-3 Ⓕ |
| Q4303 | B-1 Ⓒ |
| Q4304 | B-3 Ⓕ |
| Q4305 | B-3 Ⓕ |
| Q4306 | B-3 Ⓕ |
| Q4307 | B-3 Ⓕ |
| Q4308 | B-4 Ⓕ |
| Q4309 | B-4 Ⓕ |
| Q4310 | B-2 Ⓒ |
| Q4311 | B-3 Ⓕ |
| Q4312 | B-2 Ⓒ |
| **Connector** | |
| P4301 | B-3 Ⓕ |

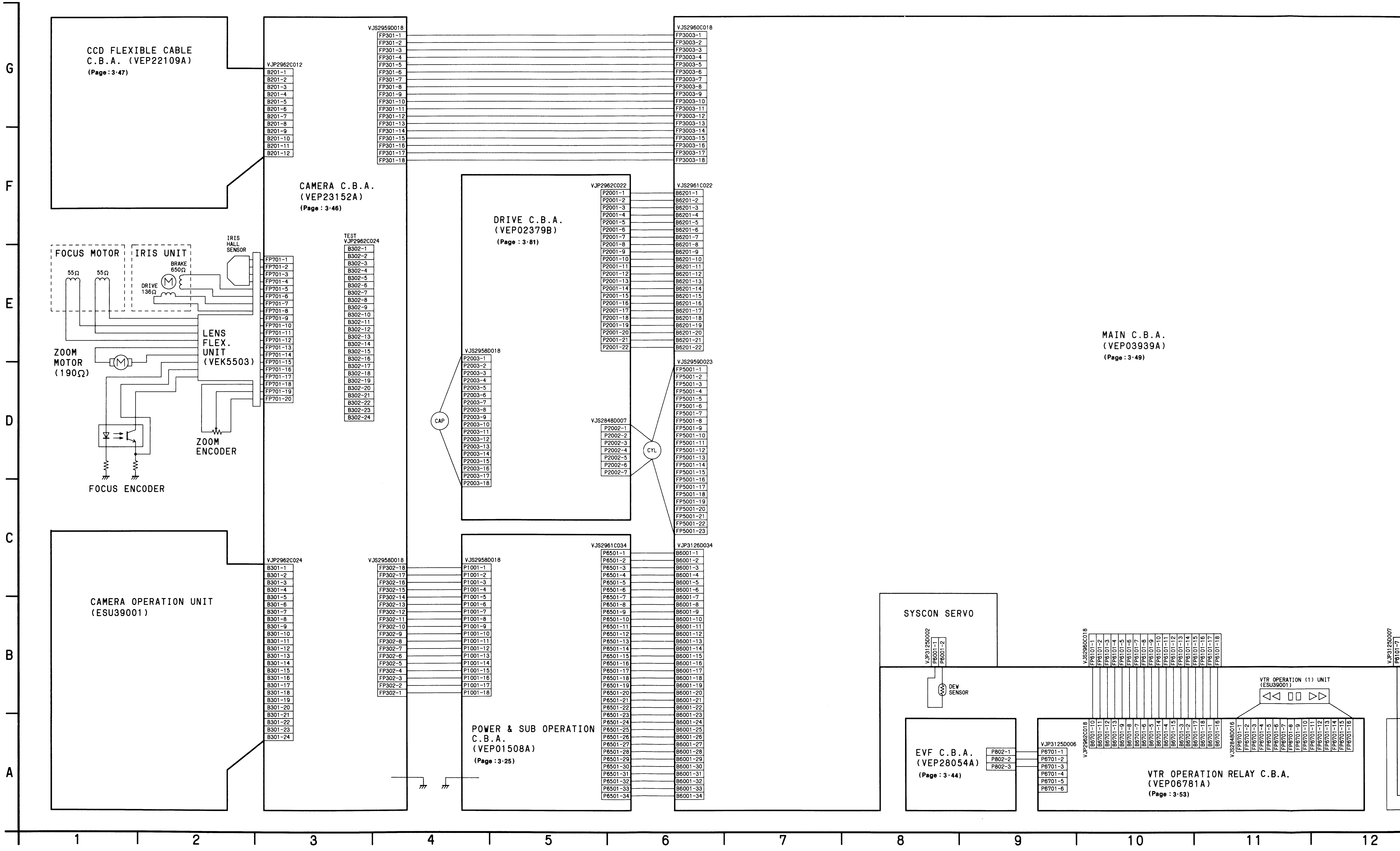
ADDRESS INFORMATION
Ⓒ... COMPONENT SIDE
Ⓕ... FOIL SIDE

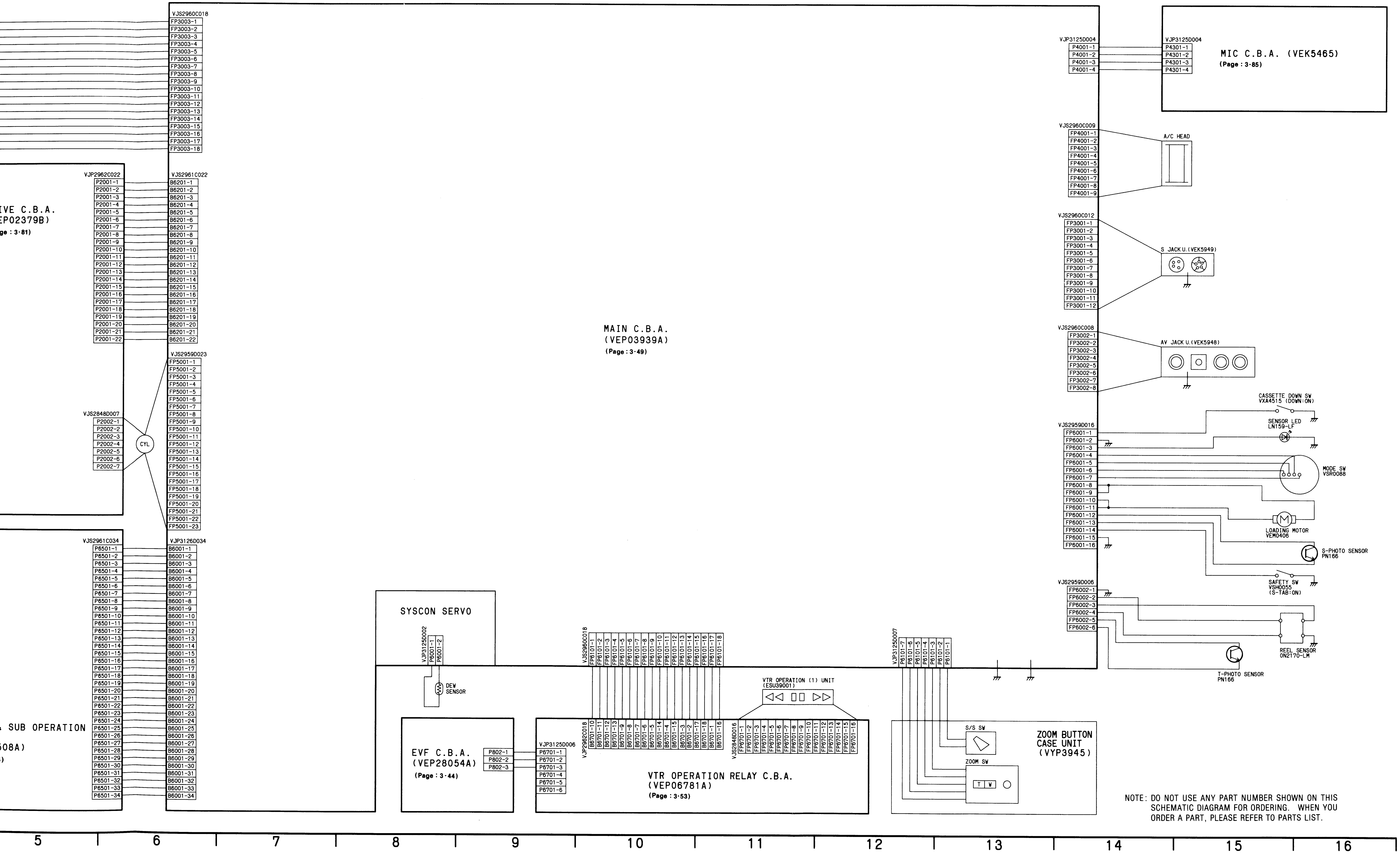
## 3-29. CIRCUIT BOARD LAYOUT


CAMERA C.B.A.
MAIN C.B.A.
MIC C.B.A.
CCD FLEXIBLE CABLE C.B.A.
EVF C.B.A.
POWER C.B.A.
DRIVE C.B.A.
VTR OPERATION RELAY C.B.A.

Back Page:
MIC Section

# 3-30. INTERCONNECTION SCHEMATIC DIAGRAM

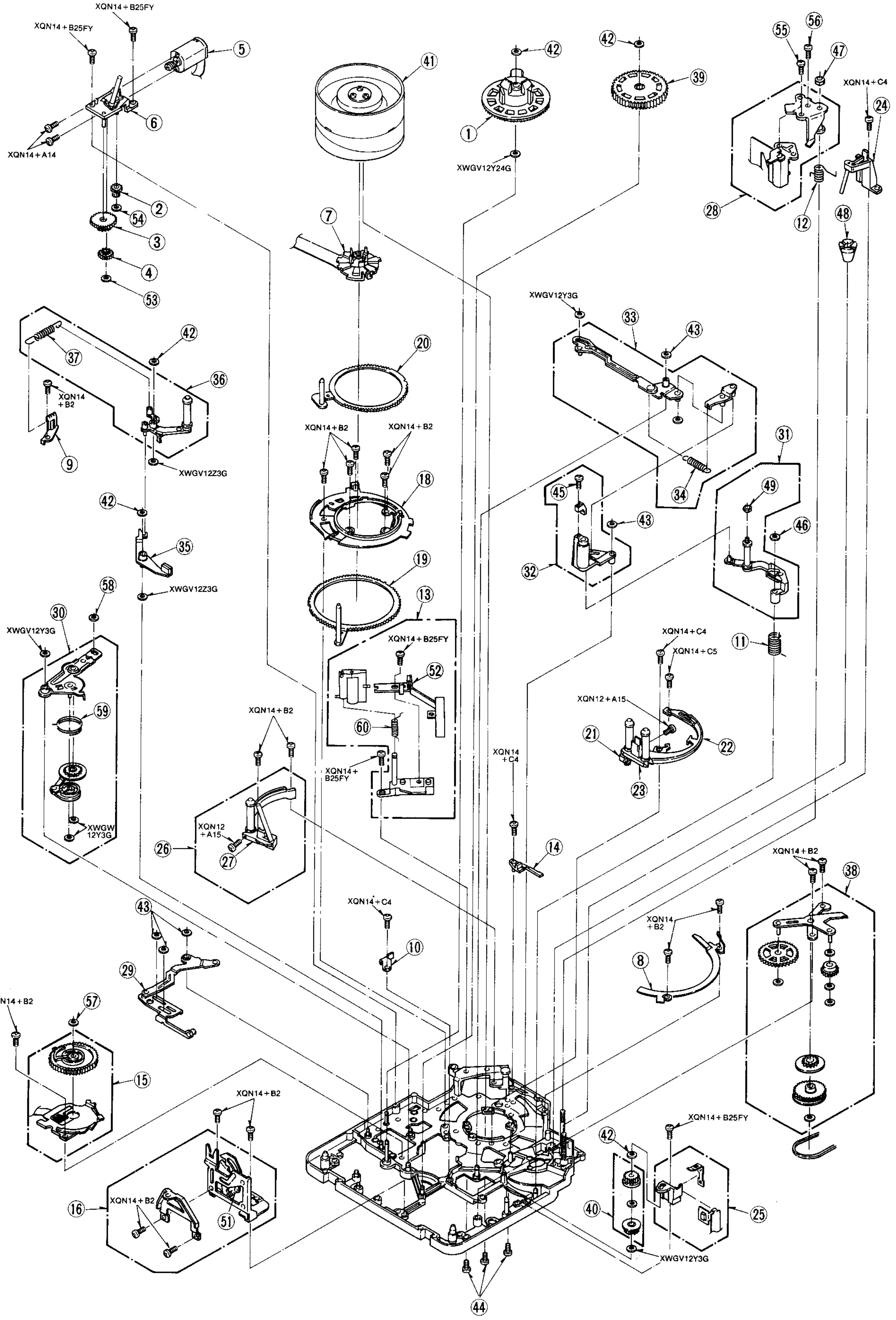

CCD FLEXIBLE CABLE C.B.A. (VEP22109A)
(Page : 3-47)
CAMERA C.B.A. (VEP23152A)
(Page : 3-46)
VJP2962C012
B201-1 ... B201-12
VJS2959D018
FP301-1 ... FP301-18
VJS2960C018
FP3003-1 ... FP3003-18
TEST VJP2962C024
B302-1 ... B302-24
FOCUS MOTOR
IRIS UNIT
55Ω
55Ω
BRAKE 650Ω
DRIVE 136Ω
IRIS HALL SENSOR
FP701-1 ... FP701-20
LENS FLEX. UNIT (VEK5503)
ZOOM MOTOR (190Ω)
ZOOM ENCODER
FOCUS ENCODER
DRIVE C.B.A. (VEP02379B)
(Page : 3-81)
VJP2962C022
P2001-1 ... P2001-22
VJS2961C022
B6201-1 ... B6201-22
VJS2958D018
P2003-1 ... P2003-18
CAP
VJS2848D007
P2002-1 ... P2002-7
CYL
VJS2959D023
FP5001-1 ... FP5001-23
MAIN C.B.A. (VEP03939A)
(Page : 3-49)
CAMERA OPERATION UNIT (ESU39001)
VJP2962C024
B301-1 ... B301-24
VJS2958D018
FP302-18 ... FP302-1
VJS2958D018
P1001-1 ... P1001-18
POWER & SUB OPERATION C.B.A. (VEP01508A)
(Page : 3-25)
VJS2961C034
P6501-1 ... P6501-34
VJP3126D034
B6001-1 ... B6001-34
SYSCON SERVO
VJP3125D002
P6001-1
P6001-2
DEW SENSOR
EVF C.B.A. (VEP28054A)
(Page : 3-44)
P802-1
P802-2
P802-3
VJP3125D006
P6701-1 ... P6701-6
VJS2960C018
FP6101-1 ... FP6101-18
VJP2962C018
B6701-1 ... B6701-18
VJS2848D016
FP6701-1 ... FP6701-16
VTR OPERATION (1) UNIT (ESU39001)
VTR OPERATION RELAY C.B.A. (VEP06781A)
(Page : 3-53)
VJP3125D007
P6101-7
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
10
11
12


VJS2960C018
FP3003-1 … FP3003-18
VJP2962C022
P2001-1 … P2001-22
VJS2961C022
B6201-1 … B6201-22
IVE C.B.A.
EP02379B)
ge : 3-81)
VJS2959D023
FP5001-1 … FP5001-23
VJS2848D007
P2002-1 … P2002-7
CYL
VJS2961C034
P6501-1 … P6501-34
VJP3126D034
B6001-1 … B6001-34
SUB OPERATION
508A)
MAIN C.B.A.
(VEP03939A)
(Page : 3-49)
SYSCON SERVO
VJP3125D002
P6001-1
P6001-2
DEW SENSOR
EVF C.B.A.
(VEP28054A)
(Page : 3-44)
P802-1
P802-2
P802-3
VJP3125D006
P6701-1 … P6701-6
VJS2960C018
FP6101-1 … FP6101-18
VJP2962C018
B6701-1 … B6701-18
VTR OPERATION (1) UNIT
(ESU39001)
VJS2848D016
FP6701-1 … FP6701-16
VTR OPERATION RELAY C.B.A.
(VEP06781A)
(Page : 3-53)
VJP3125D007
P6101-1 … P6101-7
S/S SW
ZOOM SW
T W
ZOOM BUTTON
CASE UNIT
(VYP3945)
VJP3125D004
P4001-1
P4001-2
P4001-3
P4001-4
VJP3125D004
P4301-1
P4301-2
P4301-3
P4301-4
MIC C.B.A. (VEK5465)
(Page : 3-85)
VJS2960C009
FP4001-1 … FP4001-9
A/C HEAD
VJS2960C012
FP3001-1 … FP3001-12
S JACK U.(VEK5949)
VJS2960C008
FP3002-1 … FP3002-8
AV JACK U.(VEK5948)
CASSETTE DOWN SW
VXA4515 (DOWN:ON)
SENSOR LED
LN159-LF
VJS2959D016
FP6001-1 … FP6001-16
MODE SW
VSR0088
LOADING MOTOR
VEM0406
S-PHOTO SENSOR
PN166
SAFETY SW
VSH0055
(S-TAB:ON)
VJS2959D006
FP6002-1 … FP6002-6
REEL SENSOR
ON2170-LM
T-PHOTO SENSOR
PN166
5
6
7
8
9
10
11
12
13
14
15
16

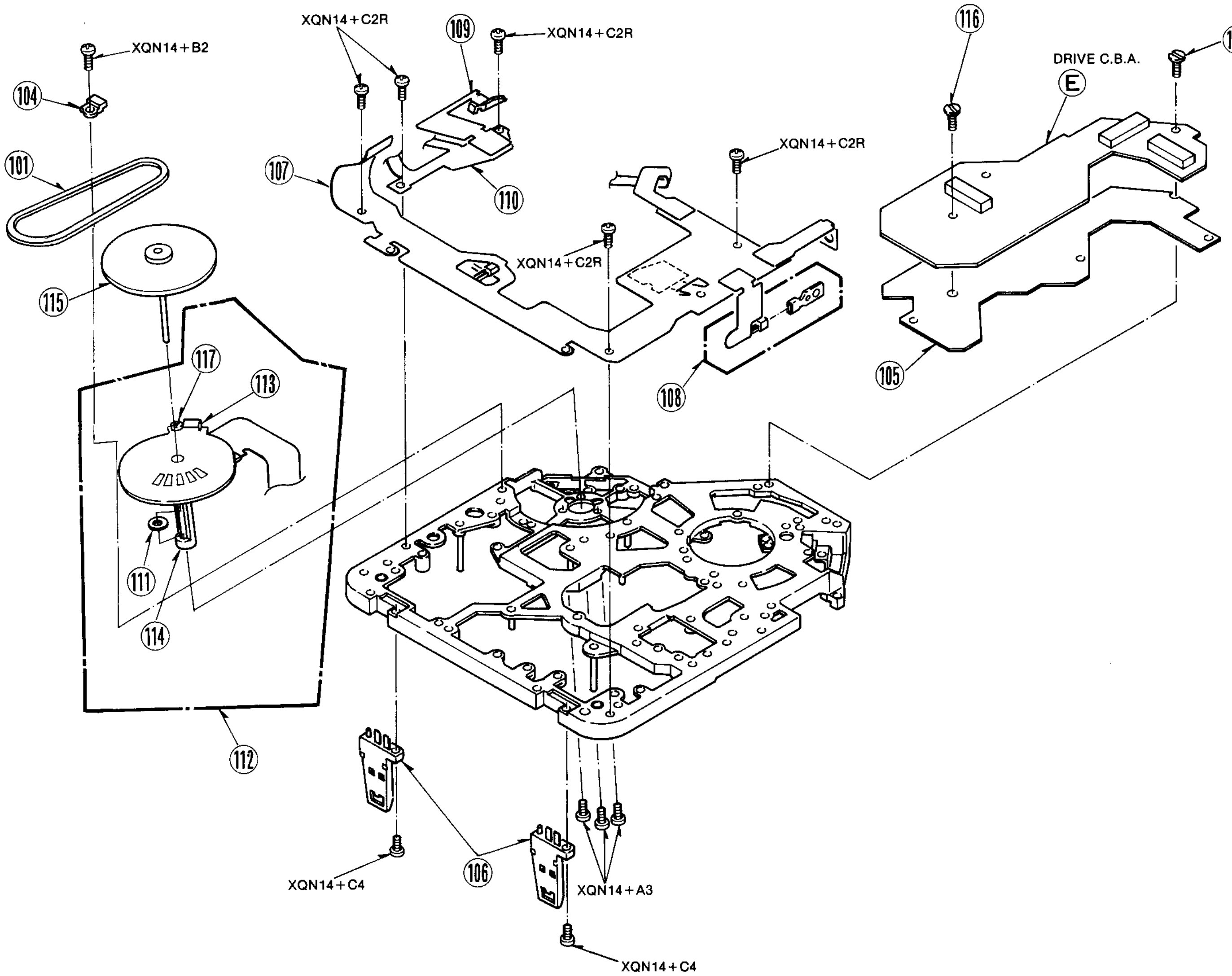
NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART, PLEASE REFER TO PARTS LIST.

# SECTION 4
# EXPLODED VIEWS & PARTS LIST

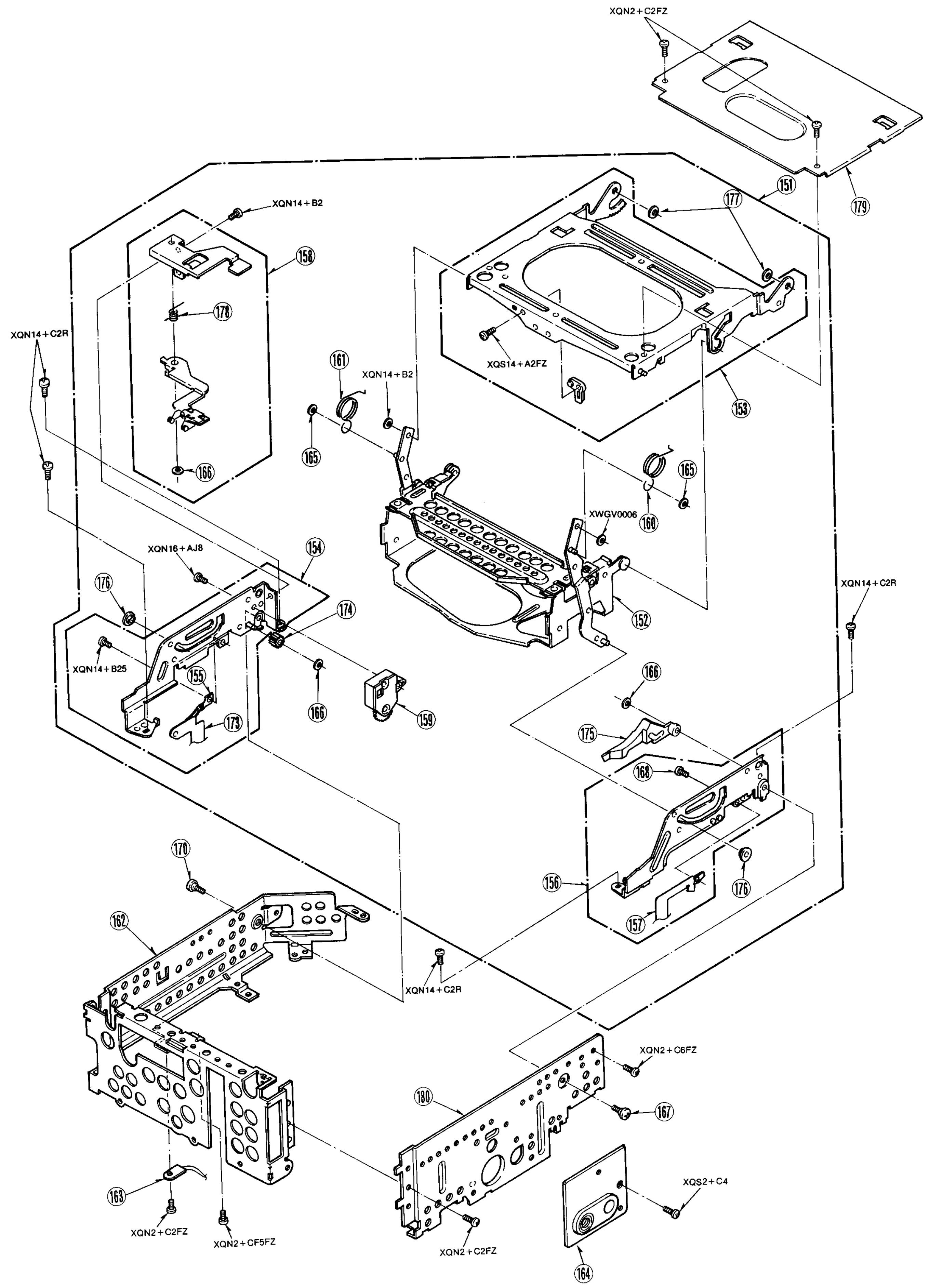
## 4-1. EXPLODED VIEWS ❶ VTR MECHANISM SECTION (1)


XQN14+B25FY
XQN14+B25FY
5
6
XQN14+A14
2
54
3
4
53
41
7
42
1
XWGV12Y24G
42
39
55
56
47
XQN14+C4
24
28
12
48
37
42
36
XQN14
+B2
9
XWGV12Z3G
42
35
XWGV12Z3G
20
XQN14+B2
XQN14+B2
18
19
13
XWGV12Y3G
33
43
34
31
45
43
49
46
32
11
58
30
XWGV12Y3G
59
XWGW
12Y3G
XQN14+B25FY
52
60
XQN14+
B25FY
XQN14+B2
26
XQN12
+A15
27
XQN14+C4
XQN14+C5
XQN12+A15
21
22
23
XQN14
+C4
14
XQN14+B2
38
XQN14+C4
10
XQN14
+B2
8
43
29
XQN14+B2
57
15
XQN14+B2
16
XQN14+B2
51
42
XQN14+B25FY
40
25
XWGV12Y3G
44

## ❷ VTR MECHANISM SECTION (2)

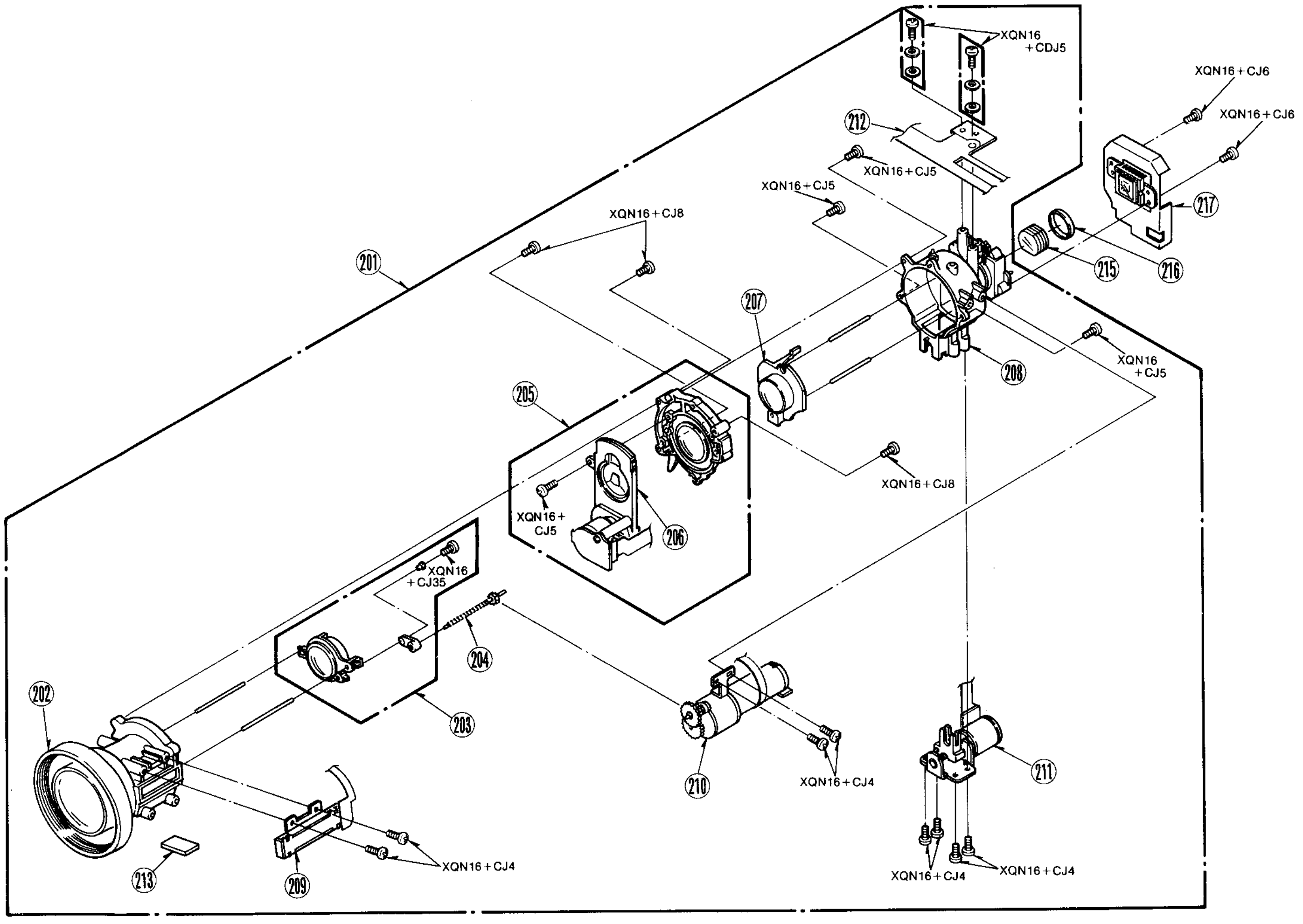

XQN14+B2
104
101
115
117
113
111
114
112
XQN14+C2R
109
XQN14+C2R
107
110
XQN14+C2R
XQN14+C2R
108
116
DRIVE C.B.A.
E
116
105
106
XQN14+C4
XQN14+A3
XQN14+C4

## ❸ VTR MECHANISM SECTION (3)

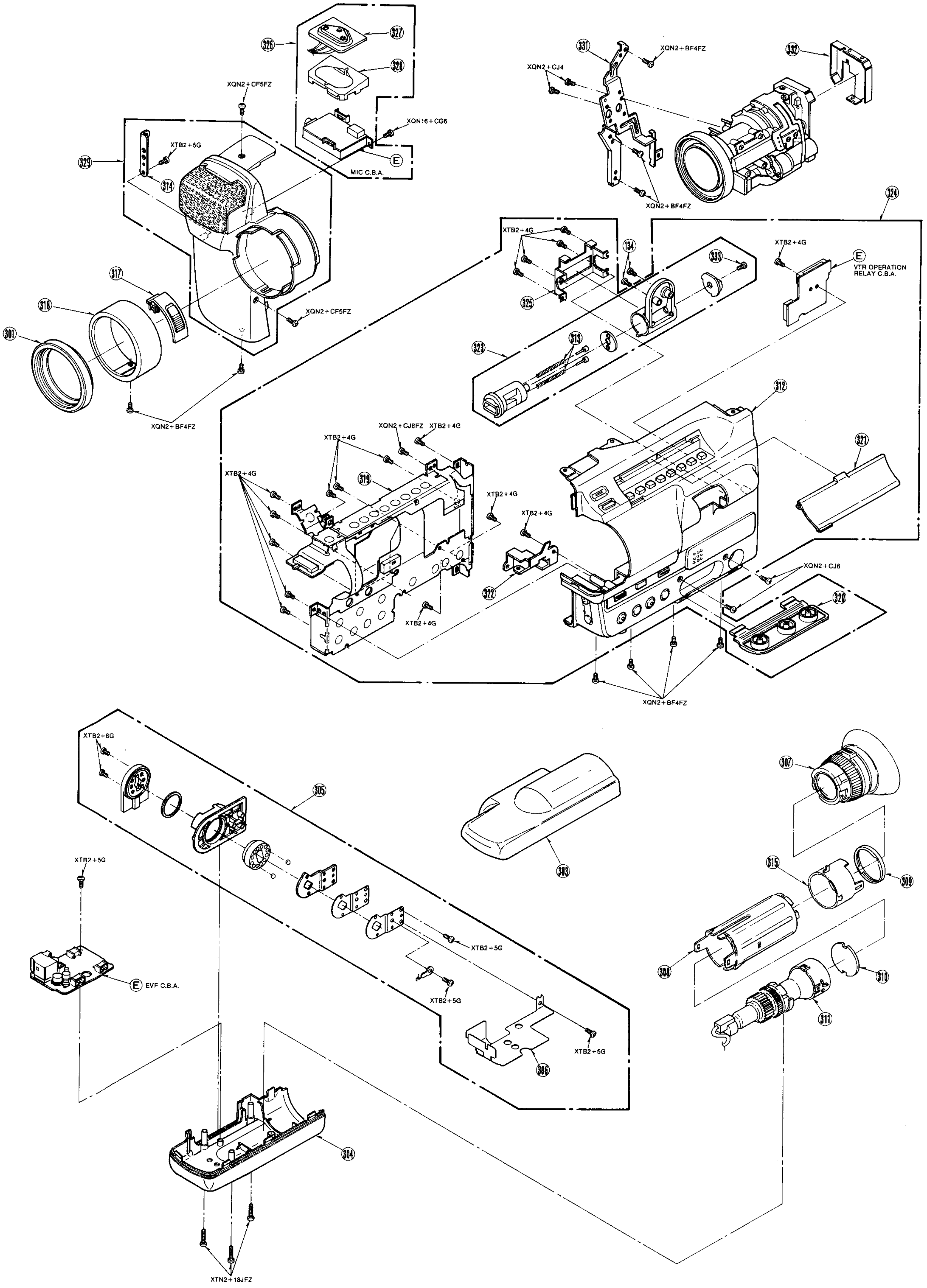


XQN2+C2FZ
151
177
179
XQN14+B2
158
178
XQN14+C2R
161
XQN14+B2
165
166
XQS14+A2FZ
153
165
160
XWGV0006
154
XQN16+AJ8
176
174
XQN14+B25
155
173
166
159
152
XQN14+C2R
166
175
168
156
176
157
170
162
XQN14+C2R
XQN2+C6FZ
180
167
XQS2+C4
163
XQN2+C2FZ
XQN2+CF5FZ
XQN2+C2FZ
164

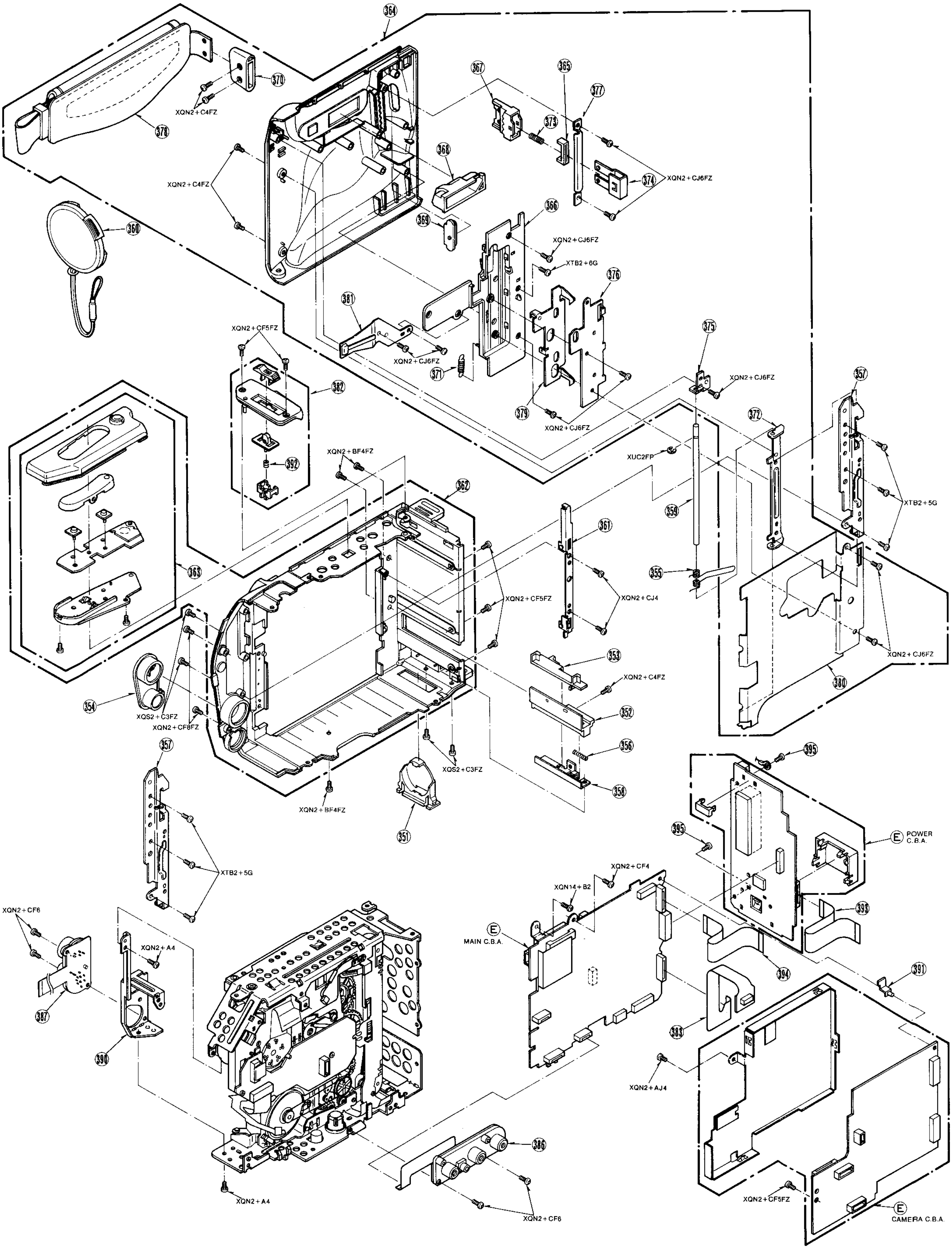
## ❹ CAMERA LENS SECTION


XQN16
+CDJ5
XQN16+CJ6
XQN16+CJ6
212
XQN16+CJ5
XQN16+CJ5
217
XQN16+CJ8
201
215
216
207
208
XQN16
+CJ5
205
XQN16+CJ8
XQN16+
CJ5
206
XQN16
+CJ35
204
202
203
210
XQN16+CJ4
211
XQN16+CJ4
XQN16+CJ4
213
209
XQN16+CJ4

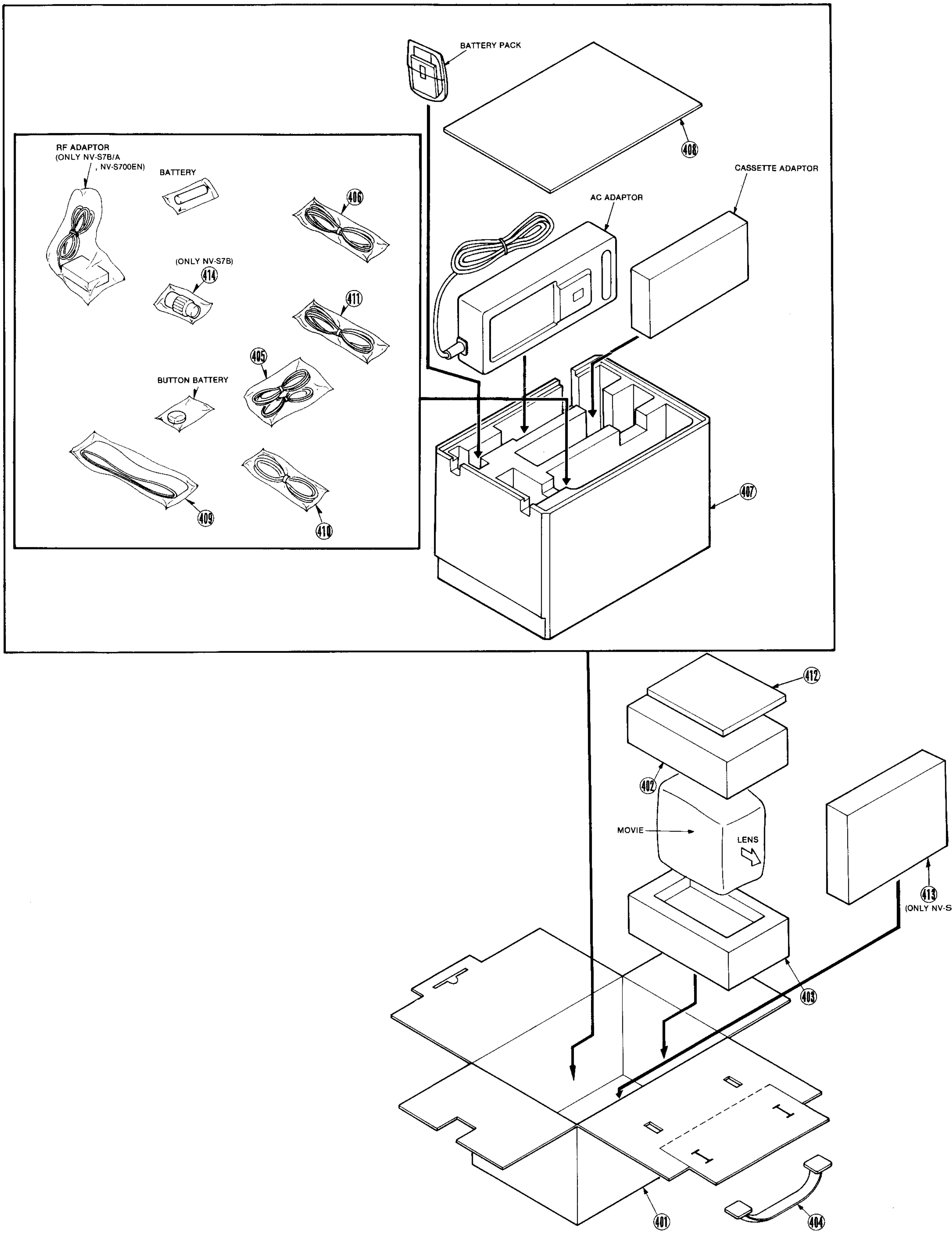
## ❺ FRAME & CASING PARTS SECTION (1)


326
327
328
XQN2+CF5FZ
XQN16+CG6
MIC C.B.A.
E
329
XTB2+5G
314
317
318
301
XQN2+CF5FZ
XQN2+BF4FZ
331
XQN2+BF4FZ
XQN2+CJ4
332
XQN2+BF4FZ
324
XTB2+4G
134
333
325
XTB2+4G
VTR OPERATION RELAY C.B.A.
323
313
312
321
XQN2+CJ6FZ
XTB2+4G
319
XTB2+4G
XTB2+4G
XTB2+4G
322
XTB2+4G
XQN2+CJ6
320
XQN2+BF4FZ
XTB2+6G
305
307
303
XTB2+5G
315
309
308
310
XTB2+5G
XTB2+5G
311
EVF C.B.A.
XTB2+5G
306
304
XTN2+18JFZ

# ❻ FRAME & CASING PARTS SECTION (2)


364
367
365
377
370
XQN2+C4FZ
378
373
XQN2+C4FZ
368
374
XQN2+CJ6FZ
366
360
369
XQN2+CJ6FZ
XTB2+6G
376
381
XQN2+CF5FZ
XQN2+CJ6FZ
371
375
XQN2+CJ6FZ
357
382
379
XQN2+CJ6FZ
372
XQN2+BF4FZ
392
XUC2FP
362
359
XTB2+5G
361
363
355
XQN2+CF5FZ
XQN2+CJ4
XQN2+CJ6FZ
353
XQN2+C4FZ
380
354
XQS2+C3FZ
XQN2+CF8FZ
352
357
356
XQS2+C3FZ
358
XQN2+BF4FZ
351
395
395
E POWER C.B.A.
XTB2+5G
XQN2+CF4
XQN14+B2
E MAIN C.B.A.
393
XQN2+CF6
XQN2+A4
394
391
387
383
390
XQN2+AJ4
386
XQN2+CF5FZ
E CAMERA C.B.A.
XQN2+A4
XQN2+CF6

# ❼ PACKING PARTS & ACCESSORIES SECTION


BATTERY PACK
408
CASSETTE ADAPTOR
AC ADAPTOR
RF ADAPTOR
(ONLY NV-S7B/A
, NV-S700EN)
BATTERY
406
(ONLY NV-S7B)
414
411
405
BUTTON BATTERY
409
410
407
412
402
MOVIE
LENS
413
(ONLY NV-S7B)
403
401
404

# 4-2. MECHANICAL REPLACEMENT PARTS LIST

Note: 1. * Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark <!> have the special characteristics for safety. When replacing any of these components, use only the same type.

| Ref.No. | | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| 1(1) | | VDR0226 | REEL BASE (S) | 1 | |
| 2(1) | | VDG0821 | BRAKE GEAR (A) | 1 | |
| 3(1) | | VDG0822 | BRAKE GEAR (B) | 1 | |
| 4(1) | | VDG0823 | BRAKE GEAR (C) | 1 | |
| 5(1) | | VEM0417 | LOADING MOTOR (1) U. | 1 | |
| 6(1) | | VXA4527 | MOTOR HOLDER U. | 1 | |
| 7(1) | | VEP03876A | RT CONNECTOR U. | 1 | |
| 8(1) | | VMA8502 | T-RING SLIDER | 1 | |
| 9(1) | | VMA8505 | TEN-REG.SPRING HOOK | 1 | |
| 10(1) | | VMA8532 | PENDULUM ARM HOLDER | 1 | |
| 11(1) | | VMB2362 | T3 ARM SPRING | 1 | |
| 12(1) | | VMB2365 | AC HEAD SPRING | 1 | |
| 13(1) | | VXA4767 | S-BOAT GUIDE U. | 1 | |
| 14(1) | | VMD1851 | T-BOAT GUIDE | 1 | |
| 15(1) | | VSR0088 | MODE SWITCH U. | 1 | |
| 16(1) | | VXA4515 | LOCK BASE U. | 1 | |
| 18(1) | | VMD1824 | RING GUIDE | 1 | |
| 19(1) | | VXA4518 | T-RING U. | 1 | |
| 20(1) | | VXA4519 | S-RING U. | 1 | |
| 21(1) | | VEK5549 | LED U. | 1 | |
| 22(1) | | VMD1828 | T-RAIL | 1 | |
| 23(1) | | VXA4776 | T-BOAT U. | 1 | |
| 24(1) | | VXA4528 | T4 POST U. | 1 | |
| 25(1) | | VXA4530 | T-REEL SENSOR U. | 1 | |
| 26(1) | | VXA4532 | S-RAIL U. | 1 | |
| 27(1) | | VXA4525 | S-BOAT U. | 1 | |
| 28(1) | | VXA4553 | AC HEAD U. | 1 | |
| 29(1) | | VXL2130 | EJECT LEVER U. | 1 | |
| 30(1) | | VXL2133 | SWING ARM U. | 1 | |
| 31(1) | | VXL2135 | T3 ARM U. | 1 | |
| 32(1) | | VXL2138 | PINCH ARM U. | 1 | |
| 33(1) | | VXL2140 | PINCH DRIVE ARM U. | 1 | |
| 34(1) | | VMB2363 | PINCH PRESSURE SPRING | 1 | |
| 35(1) | | VXL2144 | PAD ARM U. | 1 | |
| 36(1) | | VXL2145 | TEN-REG. ARM U. | 1 | |
| 37(1) | | VMB2364 | TEN-REG. SPRING | 1 | |
| 38(1) | | VXL2147 | IDLER U. | 1 | |
| 39(1) | | VXP1308 | RELAY GEAR U. | 1 | |
| 40(1) | | VXP1313 | T-DRIVE GEAR U. | 1 | |
| 41(1) | | VEG0965 | CYLINDER U. | 1 | |
| 42(1) | | VMX2027 | WASHER | 5 | |
| 43(1) | | VMX2026 | WASHER | 5 | |
| 44(1) | | VHD0682 | SCREW | 3 | |
| 45(1) | | VHD0715 | SCREW | 1 | |
| 46(1) | | VMX2135 | WASHER | 1 | |
| 47(1) | | VHN0047 | NUT | 1 | |
| 48(1) | | VHN0175 | ADJUST NUT | 1 | |
| 49(1) | | VHN0172 | T3 POST NUT | 1 | |
| 50(1) | | VHD0711 | SCREW | 2 | |
| 51(1) | | VMB2369 | LOCK SPRING | 1 | |
| 52(1) | | VXS0110 | EARTH BRUSH U. | 1 | |
| 53(1) | | VMX2027 | WASHER | 1 | |
| 54(1) | | VMX2051 | WASHER | 1 | |
| 57(1) | | VMX2026 | WASHER | 1 | |
| 58(1) | | VHD0707 | SCREW | 1 | |
| 59(1) | | VMB2359 | CHARGE SPRING | 1 | |
| 60(1) | | VMB2494 | INPEDANCE SPRING | 1 | |
| 101(2) | | VDV0232 | CAPSTAN BELT | 1 | |
| 104(2) | | VMD1846 | CAPSTAN STOPPER | 1 | |
| 105(2) | | VMZ1871 | BARRIER | 1 | |
| 106(2) | | VSH0055 | REC SAFETY SW U. | 2 | |
| 107(2) | | VWJ0580 | MECH.FLEXIBLE CARD | 1 | |
| 108(2) | | VXA4511 | PHOTO (L) U. | 1 | |
| 109(2) | | VXA4514 | PHOTO (R) U. | 1 | |
| 110(2) | | VXA4530 | T-REEL SENSOR U. | 1 | |
| 111(2) | | VDB1129 | LOWER BEARING | 1 | |
| 112(2) | | VEK5516 | STATOR U. | 1 | |
| 113(2) | | VBK0059 | MR HEAD | 1 | |
| 114(2) | | VXD0134 | HOUSING U. | 1 | |
| 115(2) | | VXP1303 | ROTOR U. | 1 | |
| 116(2) | | VHD0681 | SCREW | 2 | |
| 117(2) | | VHD0593 | SCREW | 1 | |
| 151(3) | | VXA4706 | GARAGE U. | 1 | |
| 152(3) | | VXA4506 | HOLDER U. | 1 | |
| 153(3) | | VXA4508 | GARAGE (1) U. | 1 | |
| 154(3) | | VXA4510 | STAND (L) U. | 1 | |
| 155(3) | | VXA4511 | PHOTO (L) U. | 1 | |
| 156(3) | | VXA4513 | STAND (R) U. | 1 | |
| 157(3) | | VXA4514 | PHOTO (R) U. | 1 | |
| 158(3) | | VXL2222 | TAPE GUIDE U. | 1 | |
| 159(3) | | VXP1315 | DUMPER | 1 | |
| 160(3) | | VMB2367 | UP SPRING (R) | 1 | |
| 161(3) | | VMB2368 | UP SPRING (L) | 1 | |
| 162(3) | | VMP3312 | MAIN FRAME | 1 | |
| 163(3) | | VEK5550 | DEW SENSOR | 1 | |
| 164(3) | | VMD1873 | TRIPOD FRAME | 1 | |
| 165(3) | | VMD1970 | WASHER | 2 | |
| 166(3) | | VMX1061 | WASHER | 3 | |
| 167(3) | | VHD0714 | SCREW | 1 | |
| 168(3) | | VHD0706 | SCREW | 1 | |
| 170(3) | | VHD0713 | SCREW | 1 | |
| 173(3) | | VWJ0548 | PHOTO FLEX.CARD | 1 | |
| 174(3) | | VDG0827 | DUMPER RELAY GEAR | 1 | |
| 175(3) | | VML2580 | TAPE OPEN LEVER | 1 | |
| 176(3) | | VDP1406 | ARM HOLDER | 2 | |
| 177(3) | | VMX1042 | WASHER | 2 | |
| 178(3) | | VMB2498 | PROTECTOR ARM SPRING | 1 | |
| 179(3) | | VGP3080 | CASS. INNER COVER | 1 | |
| 180(3) | | VMP3309 | BOTTOM FRAME | 1 | |
| 201(4) | | VXW0103 | LENS U. | 1 | |
| 202(4) | | VXQ0263 | LENS MAIN U. | 1 | |
| 203(4) | | VXP1300 | 2ND MOVING FRAME U. | 1 | |
| 204(4) | | VXP1302 | SCREW SHAFT U. | 1 | |
| 205(4) | | VXQ0264 | 3RD U. | 1 | |
| 206(4) | | VXL2126 | IRIS U. | 1 | |
| 207(4) | | VXP1301 | 4TH MOVING FRAME U. | 1 | |
| 208(4) | | VMD1815 | MASTER FLANGE U. | 1 | |
| 209(4) | | EVAJH4J03B14 | ZOOM ENCODER | 1 | |
| 210(4) | | VEM0408 | ZOOM MOTOR | 1 | |
| 211(4) | | VEM0413 | FOCUS MOTOR | 1 | |
| 212(4) | | VEK5684 | LENS FLEX. U. | 1 | |
| 213(4) | | VMT0336 | CUSHION | 1 | |
| 214(4) | | VMT0342 | ZOOM MOTOR CUSHION | 1 | |
| 215(4) | | VDL0304 | CRYSTAL FILTER | 1 | |
| 216(4) | | VMX2099 | CCD CUSHION | 1 | |
| 217(4) | | VEK5837 | CCD U. | 1 | |
| 301(5) | | VDW0165 | LENS FOOD | 1 | |
| 303(5) | | VKM2976 | EVF CASE (UPPER) | 1 | |
| 304(5) | | VYK4220 | EVF CASE LOWER U. | 1 | NV-S7EG/EC/A,S700EN |
| 304(5) | | VYK4277 | EVF CASE LOWER U. | 1 | NV-S7B |
| 305(5) | | VYP3750 | ROTATION SECTION FIX.U. | 1 | |
| 306(5) | | VMZ1939 | BARRIER | 1 | |
| 307(5) | | VYQ0573 | EYE CAP U. | 1 | |
| 308(5) | | VGQ2500 | SLIDE PIECE | 1 | |
| 309(5) | | VGU5569 | EVF RING | 1 | |

| Ref.No. |  | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| 310(5) |  | VKW1627 | MASKING PLATE | 1 |  |
| 311(5) |  | MO1KKXO7WBO6 | ITC | 1 |  |
| 312(5) |  | VYK4223 | SIDE CASE (R)(1) U. | 1 | NV-S7EG |
| 312(5) |  | VYK4215 | SIDE CASE (R)(1) U. | 1 | NV-S7B/EC/A |
| 312(5) |  | VYK4229 | SIDE CASE (R)(1) U. | 1 | NV-S700EN |
| 313(5) |  | VMB2387 | ROTATION LOCK SPRING | 2 |  |
| 314(5) |  | VMP3369 | FRONT FIX. ANGLE | 1 |  |
| 315(5) |  | VJF1021 | CRT HOLDER | 1 |  |
| 317(5) |  | VGU5670 | AGC KNOB | 1 |  |
| 318(5) |  | VKF1765 | LENS COVER | 1 |  |
| 319(5) |  | ESU39001 | CAMERA OPERATION U. | 1 |  |
| 320(5) |  | VKF1817 | AV JACK COVER | 1 |  |
| 321(5) |  | VKF1833 | VTR DOOR PANEL | 1 |  |
| 322(5) |  | VMP3313 | CASE FIX. ANGLE (A) | 1 |  |
| 323(5) |  | VXA4736 | EVF FIX. U. | 1 |  |
| 324(5) |  | VYK4222 | SIDE CASE (R) U. | 1 | NV-S7EG |
| 324(5) |  | VYK4214 | SIDE CASE (R) U. | 1 | NV-S7B/EC/A |
| 324(5) |  | VYK4228 | SIDE CASE (R) U. | 1 | NV-S700EN |
| 325(5) |  | VMP3316 | ROTATION U. SET ANGLE | 1 |  |
| 326(5) |  | VEK5465 | MIC U. | 1 |  |
| 327(5) |  | VEK5467 | ECM U. | 1 |  |
| 328(5) |  | VMP3251 | SHIELD CASE | 1 |  |
| 329(5) |  | VYK4225 | FRONT CASE (1) U. | 1 | NV-S7EG |
| 329(5) |  | VYK4217 | FRONT CASE (1) U. | 1 | NV-S7B/EC/A,NV-S700EN |
| 331(5) |  | VMP3308 | LENS FRAME | 1 |  |
| 332(5) |  | VSC3688 | CCD SHIELD CASE (A) | 1 |  |
| 333(5) |  | VHD0689 | SCREW | 1 |  |
| 334(5) |  | VHD0717 | SCREW | 2 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| 351(6) |  | VKF1707 | BATTERY COVER | 1 |  |
| 352(6) |  | VGQ2607 | BATT.LOCK HOLDER | 1 |  |
| 353(6) |  | VGQ2615 | BATT.LOCK | 1 |  |
| 354(6) |  | VKF1818 | S-VHS JACK COVER | 1 |  |
| 355(6) |  | VMB2385 | ROTARY MOVING SPRING | 1 |  |
| 356(6) |  | VMB2386 | BATT.LOCK SPRING | 1 |  |
| 357(6) |  | VMC0792 | ROTARY MOVING ANGLE (B) | 1 |  |
| 358(6) |  | VMP3323 | BATT. LOCK ANGLE | 1 |  |
| 359(6) |  | VMS4762 | ROTARY MOVING SHAFT | 1 |  |
| 360(6) |  | VYF1856 | FOOD CAP U. | 1 |  |
| 361(6) |  | VYK3986 | CASS.COVER LOCK U. | 1 |  |
| 362(6) |  | VYK4227 | SIDE CASE (L)(1) U. | 1 | NV-S7EG |
| 362(6) |  | VYK4219 | SIDE CASE (L)(1) U. | 1 | NV-S7B/EC/A,NV-S700EN |
| 363(6) |  | VYP3945 | ZOOM BUTTON CASU U. | 1 |  |
| 364(6) |  | VYP3946 | CASSETTE COVER U. | 1 |  |
| 365(6) |  | VGQ2606 | SLIDE PIECE | 1 |  |
| 366(6) |  | VGQ2609 | CASS.COVER HOLDER | 1 |  |
| 367(6) |  | VGQ2610 | GRIP BELT HOLDER | 1 |  |
| 368(6) |  | VGU5674 | LOCK RELEASE KNOB | 1 |  |
| 369(6) |  | VGU5675 | S/S BUTTON | 1 |  |
| 370(6) |  | VGU5676 | GRIP BELT CAP | 1 |  |
| 371(6) |  | VMB2384 | CASS. LOCK SPRING | 1 |  |
| 372(6) |  | VMC0793 | ROTARY MOVING ANGLE (A) | 1 |  |
| 373(6) |  | VMB2383 | SLIDE LOCK SPRING | 1 |  |
| 374(6) |  | VMP3318 | SLIDE ANGLE | 1 |  |
| 375(6) |  | VMP3325 | SHAFT BEARING | 1 |  |
| 376(6) |  | VMP3354 | CASS. LOCK HOLDER | 1 |  |
| 377(6) |  | VMS4761 | SLIDE RAIL | 1 |  |
| 378(6) |  | VYC0531 | GRIP BELT U. | 1 |  |
| 379(6) |  | VYK4088 | CASS.LOCK ANGLE (B) U. | 1 |  |
| 380(6) |  | VMZ1915 | BLIND COVER | 1 |  |
| 381(6) |  | VMC0831 | CASS.DOWN SPRING | 1 |  |
| 382(6) |  | VYP3947 | POWER BUTTON PANEL U. | 1 |  |
| 383(6) |  | VEK5660 | RELAY FLEX. U. | 1 |  |
| 386(6) |  | VEK5948 | AV JACK U. | 1 |  |
| 387(6) |  | VEK5949 | S-TERMINAL U. | 1 |  |
| 390(6) |  | VMP3311 | JACK FRAME | 1 |  |
| 391(6) |  | VKC0400 | CAMERA C.B.A. POST | 1 |  |
| 392(6) |  | VMB2227 | BATTERY LOCK SPRING | 1 |  |
| 393(6) |  | VWJ0556 | POW-CAM FLEX. CABLE | 1 |  |
| 394(6) |  | VWJ0557 | VTR-CAM FLEX. CABLE | 1 |  |
| 395 (6) |  | VHD0439 | SCREW | 2 |  |

| Ref.No. |  | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| 401(7) |  | VPG6340 | PACKING CASE | 1 | NV-S7EG |
| 401(7) |  | VPG6337 | PACKING CASE | 1 | NV-S7B |
| 401(7) |  | VPG6338 | PACKING CASE | 1 | NV-S7EC |
| 401(7) |  | VPG6336 | PACKING CASE | 1 | NV-S7A |
| 401(7) |  | VPG6339 | PACKING CASE | 1 | NV-S700EN |
| 402(7) |  | VPN3229 | CUSHION (UPPER) | 1 |  |
| 403(7) |  | VPN3230 | CUSHION (LOWER) | 1 |  |
| 404(7) |  | VPN2329 | HANDLE | 1 |  |
| 405(7) |  | VFA0096 | AV CORD | 1 |  |
| 405(7) |  | VFA0028 | AV CORD | 1 | NV-S7B/A,NV-S700EN |
| 406(7) |  | VJA0658 | 4P CORD | 1 |  |
| 407(7) |  | VPN3225 | ACCESSORY BOX | 1 |  |
| 408(7) |  | VPN3226 | ACCESSORY PAD | 1 |  |
| 409(7) |  | VFC0974 | SHOLDER STRAP | 1 |  |
| 410(7) |  | VJA0669 | DC OUTPUT CABLE | 1 |  |
| 411(7) |  | VFA0029 | AUDIO CABLE | 1 | NV-S7EG |
| 412(7) |  | VQT4499 | OPERATING INSTRUCTIONS | 1 | NV-S7EG/EC |
| 412(7) |  | VQT4500 | OPERATING INSTRUCTIONS | 1 | NV-S7EC |
|  |  |  | (FRENCH/SPANISH) |  |  |
| 412(7) |  | VQT4501 | OPERATING INSTRUCTIONS | 1 | NV-S7EC |
|  |  |  | (FINISH/DANISH/SWEDISH) |  |  |
| 412(7) |  | VQT4496 | OPERATING INSTRUCTIONS | 1 | NV-S7B |
|  |  |  | (ENGLISH) |  |  |
| 412(7) |  | VQT4495 | OPERATING INSTRUCTIONS | 1 | NV-S7A |
|  |  |  | (ENGLISH) |  |  |
| 412(7) |  | VQT4497 | OPERATING INSTRUCTIONS |  | NV-S700EN |
|  |  |  | (ENGLISH/CHINESE) |  |  |
| 412(7) |  | VQT4498 | OPERATING INSTRUCTIONS | 1 | NV-S700EN |
|  |  |  | (ARABIC/HINDY) |  |  |
| 413(7) |  | VFC1089 | SOFT CASE | 1 | NV-S7B |
| 414(7) |  | VFA0097 | PHONO/BNC PLUG ADAPTOR | 1 | NV-S7B |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | JIG & TOOLS |  |  |
|  |  | VFM180HUPF | VHS-ALIGNMENT TAPE | 1 | PAL |
|  |  | VFK0374 | COLOUR TEMP.CONV.FILTER | 1 | (C12) OR VFK0713 |
|  |  | VFK0375 | COLOUR TEMP.CONV.FILTER | 1 | (C2) OR VFK0716 |
|  |  | VFK0644 | EVR FIXTURE | 1 |  |
|  |  | VFK0701ROM5 | ROM | 1 |  |
|  |  | VFK0335 | RETAINING RING REMOVER | 1 |  |
|  |  | VFK0329 | POST ADJ. SCREW DRIVER | 1 |  |
|  |  | VFK0343 | CHECK LIGHT | 1 |  |
|  |  | VFK0326 | HEX WRENCH SET | 1 |  |
|  |  | VFK27 | HEAD CLEANING STICK | 1 |  |
|  |  | MOR265 | MORLTONE GEASE | 1 |  |
|  |  | VFK0725 | EXTENSION CABLE 18P | 1 |  |
|  |  | VFK0726 | EXTENSION CABLE 18P | 1 |  |
|  |  | VFK0668 | EXTENSION CABLE 24P | 1 |  |
|  |  | VFK0751 | EXTENSION CABLE 18P | 1 |  |
|  |  | VFK0728FW | EXTENSION CABLE 9P | 1 |  |
|  |  | VFK0727FW | EXTENSION CABLE 14P | 1 |  |
|  |  | VFK0729FW | EXTENSION CABLE 6P | 1 |  |
|  |  | VFK0723 | EXTENSION CABLE 22P | 1 |  |
|  |  | VFK0752 | EXTENSION CABLE 34P | 1 |  |
|  |  | VFK0766A | EVR CONNECTION CABLE | 1 |  |
|  |  | VFK0734A | CONNECTION CABLE FOR | 1 |  |
|  |  |  | MEASUREMENT |  |  |
|  |  | VFK0743 | H-Position ADJUSTMENT | 1 |  |
|  |  |  | DRIVER |  |  |

# 4-3. ELECTRICAL REPLACEMENT PARTS LIST

Note:1.* Be sure to make your orders of replacement parts according to this list.
2.IMPORTANT SAFETY NOTICE
Components identified with the mark <!> have the special characteristics for safety. When replacing any of these components,use only the same type.
3.Unless otherwise specified,
All resistors are in OHMS ,K=1,000 OHMS. All capacitors are in MICRO-FARADS(uf),P=uuF.
4.The P.C.Board units marked width'■'show below the main assembled parts.
5.Printed circuit board assembly with mark(NIA) is no longer available after discontinuation of the product.

| Ref.No. | | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| | | VEP23152A | CAMERA MAIN C.B.A. | 1 | (NIA) |
| | | VEP28054A | EVF C.B.A. | 1 | (NIA) |
| | | VEK5465 | MIC C.B.A. | 1 | (NIA) |
| | | VEP03939A | MAIN C.B.A. | 1 | (NIA) |
| | | VEP01508A | POWER C.B.A. | 1 | (NIA) |
| | | VEP06781A | SUB OPERATION C.B.A. | 1 | (NIA) |
| | | VEP02379A | DRIVE C.B.A. | 1 | (NIA) |
| | ■ | VEP23152A | CAMERA MAIN C.B.A. | | (NIA) |
| | | | CONNECTORS | | |
| B201 | | VJP2962C012 | CONNECTOR (MALE) | 1 | |
| B301,02 | | VJP2962C024 | CONNECTOR (MALE) | 2 | |
| | | | CAPACITORS | | |
| C201 | | ECST1CX685Z | T.CAPACITOR 16V 68U | 1 | |
| C202,03 | | ECUX1H270JCV | C.CAPACITOR CH 50V 27P | 2 | |
| C204 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 | |
| C205 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 | |
| C206,07 | | ECUM1C105ZFN | C.CAPACITOR 16V 1U | 2 | |
| C208 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 | |
| C209 | | ECST1CY335Z | T.CAPACITOR 16V 3.3U | 1 | |
| C210 | | ECST1VX155Z | T.CAPACITOR 35V 1.5U | 1 | |
| C211 | | ECST1CY335Z | T.CAPACITOR 16V 3.3U | 1 | |
| C212 | | ECEV1VA220 | E.CAPACITOR CH 35V 22U | 1 | |
| C213,14 | | ECUX1H270JCV | C.CAPACITOR CH 50V 27P | 2 | |
| C215 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 | |
| C216,17 | | ECUX1H270JCV | C.CAPACITOR CH 50V 27P | 2 | |
| C218 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 | |
| C219 | | ECUM1C224ZFN | C.CAPACITOR 16V 0.22U | 1 | |
| C220 | | ECUX1H150JCV | C.CAPACITOR CH 50V 15P | 1 | |
| C221 | | ECUM1C105ZFN | C.CAPACITOR 16V 1U | 1 | |
| C222 | | ECUX1H120JCV | C.CAPACITOR CH 50V 12P | 1 | |
| C223 | | ECRJA020E11 | CAPACITOR | 1 | |
| C224 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 | |
| C226 | | ECUX1H100DCV | C.CAPACITOR CH 50V 10P | 1 | |
| C227,28 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 2 | |
| C229 | | ECST0GY106Z | T.CAPACITOR CH 4V 10U | 1 | |
| C230,31 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 2 | |
| C232 | | ECUM1C1052FN | C.CAPACITOR 16V 1U | 1 | |
| C233 | | ECUX1H103ZFV | C.CAPACITOR CH 50V 0.01U | 1 | |
| C234 | | ECUM1C185ZFN | C.CAPACITOR CH 16V 1.8U | 1 | |
| C235 | | ECUM1C105ZFN | C.CAPACITOR 16V 1U | 1 | |
| C236 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 | |
| C237 | | ECST0GY106Z | T.CAPACITOR CH 4V 10U | 1 | |
| C238-40 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 3 | |
| C241 | | ECUX1H180JCV | C.CAPACITOR CH 50V 18P | 1 | |
| C242 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 | |
| C243 | | ECUX1C473ZFV | C.CAPACITOR CH 16V 0.047U | 1 | |
| C244 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 | |
| C245 | | ECST1CX685Z | T.CAPACITOR 16V 68U | 1 | |
| C247 | | ECUX1H060CCV | C.CAPACITOR CH 50V 10P | 1 | |
| C250 | | ECUM1C185ZFN | C.CAPACITOR CH 16V 1.8U | 1 | |
| C251 | | ECST1VX155Z | T.CAPACITOR 35V 1.5U | 1 | |
| C252 | | ECUX1H100DCV | C.CAPACITOR CH 50V 10P | 1 | |
| C254 | | ECUM1C185ZFN | C.CAPACITOR CH 16V 1.8U | 1 | |
| C255 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 | |
| C258,59 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 2 | |
| C260,61 | | ECUX1H560JCV | C.CAPACITOR CH 50V 56P | 2 | |
| C262 | | ECUX1H100DCV | C.CAPACITOR CH 50V 10P | 1 | |
| C263 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 | |
| C264 | | ECUX1H100DCV | C.CAPACITOR CH 50V 10P | 1 | |
| C267 | | ECST0GX226Z | T.CAPACITOR CH 4V 22U | 1 | |
| C289 | | ECUX1H050CCV | C.CAPACITOR CH 50V 5P | 1 | |
| C301-03 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 3 | |
| C304 | | ECUM1C105ZFM | C.CAPACITOR CH 16V 1U | 1 | |
| C305 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 | |
| C306 | | ECUM1C105ZFM | C.CAPACITOR CH 16V 1U | 1 | |
| C307,08 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 2 | |
| C311 | | ECUX1H102KBV | C.CAPACITOR CH 50V 1000P | 1 | |
| C312 | | ECUM1C224ZFN | C.CAPACITOR 16V 0.22U | 1 | |
| C313 | | ECUX1H151JCV | C.CAPACITOR CH 50V 150P | 1 | |
| C314,15 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 2 | |
| C318 | | ECUM1C105ZFN | C.CAPACITOR 16V 1U | 1 | |
| C321 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 | |
| C322 | | ECUM1C105ZFN | C.CAPACITOR 16V 1U | 1 | |
| C323 | | ECUX1H103ZFV | C.CAPACITOR CH 50V 0.01U | 1 | |
| C324 | | ECUX1C1042FV | C.CAPACITOR CH 16V 0.1U | 1 | |
| C325 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 | |
| C326 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 | |
| C328,29 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 2 | |
| C330,31 | | ECUX1H101JCV | C.CAPACITOR CH 50V 100P | 2 | |
| C332 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 | |
| C334 | | ECST0GY106Z | T.CAPACITOR CH 4V 10U | 1 | |
| C335 | | ECUM1C105ZFM | C.CAPACITOR CH 16V 1U | 1 | |
| C336-40 | | ECUX1H560JCV | C.CAPACITOR CH 50V 56P | 5 | |
| C341,42 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 2 | |
| C343 | | ECUX1H101JCV | C.CAPACITOR CH 50V 100P | 1 | |
| C345 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 | |
| C357 | | ECUX1C224ZFV | C.CAPACITOR CH 16V 0.022U | 1 | |
| C358-62 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 5 | |
| C363 | | ECUX1H120JCV | C.CAPACITOR CH 50V 12P | 1 | |
| C365 | | ECUX1H390JCV | C.CAPACITOR CH 50V 39P | 1 | |
| C701 | | ECUM1C104KBN | C.CAPACITOR CH 16V 0.1U | 1 | |
| C703 | | ECUX1H151JCV | C.CAPACITOR CH 50V 150P | 1 | |
| C704 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 | |
| C705 | | ECUM1C683ZFV | C.CAPACITOR CH 16V 0.068U | 1 | |
| C706-09 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 4 | |
| C710 | | ECUX1C473ZFV | C.CAPACITOR CH 16V 0.047U | 1 | |
| C712 | | ECUX1H560JCV | C.CAPACITOR CH 50V 56P | 1 | |
| C713,14 | | ECUM1C224ZFN | C.CAPACITOR 16V 0.22U | 2 | |
| C715 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 | |
| C716 | | ECUM1C224ZFN | C.CAPACITOR 16V 0.22U | 1 | |
| C717 | | ECUM1C105ZFN | C.CAPACITOR 16V 1U | 1 | |
| C718 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 | |
| C719 | | ECST0GY106Z | T.CAPACITOR CH 4V 10U | 1 | |
| C720,21 | | ECUX1H102KBV | C.CAPACITOR CH 50V 1000P | 2 | |
| C722 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 | |
| C724,25 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 2 | |
| C726 | | ECEV1CV470S | E.CAPACITOR 16V 47U | 1 | |
| C727 | | ECUX1H332KBV | C.CAPACITOR CH 50V 3300P | 1 | |
| C729-31 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 3 | |
| C732,33 | | ECUM1C105ZFN | C.CAPACITOR 16V 1U | 2 | |
| C734 | | ECUX1H560JCV | C.CAPACITOR CH 50V 56P | 1 | |
| C736 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 | |
| C737 | | ECUX1H103ZFV | C.CAPACITOR CH 50V 0.01U | 1 | |
| C738 | | ECST1CY225Z | T.CAPACITOR 16V 2.2U | 1 | |

| Ref.No. |  | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| C739,40 |  | ECUX1H472KBV | C.CAPACITOR CH 50V 4700P | 2 |  |
| C741,42 |  | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 2 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | DIODES |  |  |
| D201-04 |  | MA110 | DIODE | 4 |  |
| D207-09 |  | MA110 | DIODE | 3 |  |
| D211 |  | MA133 | DIODE | 1 |  |
| D301 |  | MA110 | DIODE | 1 |  |
| D701 |  | MA110 | DIODE | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | FILTERS |  |  |
| FL201 |  | VLF0883 | FILTER | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | CONNECTORS |  |  |
| FP301 |  | VJS2959B018 | CONNECTOR (FEMALE) | 1 |  |
| FP302 |  | VJS2958D018 | CONNECTOR (FEMALE) | 1 |  |
| FP701 |  | VJS2958D020 | CONNECTOR (FEMALE) | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | INTEGRATED CIRCUITS |  |  |
| IC201 |  | MN5155 | IC | 1 |  |
| IC202 |  | MN3110SA | IC | 1 |  |
| IC203 |  | AN2013SB | IC | 1 |  |
| IC204 |  | AN2030FAP | IC | 1 |  |
| IC205 |  | M62352GP | IC | 1 |  |
| IC206 |  | TC7S04F | IC | 1 |  |
| IC301 |  | MN4791S | IC | 1 |  |
| IC302,03 |  | ZA4030 | IC | 2 |  |
| IC304 |  | MN6733 | IC | 1 |  |
| IC305 |  | L7A0745 | IC | 1 |  |
| IC306 |  | MN6732 | IC | 1 |  |
| IC307 |  | MN655431SH | IC | 1 |  |
| IC308 |  | MN73512XWAS | IC | 1 |  |
| IC309 |  | MN1882010V4D | IC | 1 |  |
| IC310 |  | AK6420F | IC | 1 |  |
| IC311 |  | MN13821-Y | IC | 1 |  |
| IC312 |  | MN1882010V4E | IC | 1 |  |
| IC315 |  | MN657011H | IC | 1 |  |
| IC316 |  | MN5185 | IC | 1 |  |
| IC317 |  | AN2040SB | IC | 1 |  |
| IC318 |  | TC7S08F | IC | 1 |  |
| IC319,20 |  | TC7S32F | IC | 2 |  |
| IC701 |  | MN12821Q | IC | 1 |  |
| IC702 |  | MN6781VMAB | IC | 1 |  |
| IC703 |  | AN2585FAP | IC | 1 |  |
| IC704,05 |  | LM358DB | IC | 2 |  |
| IC706 |  | AN6663S | IC | 1 |  |
| IC707 |  | TB6504F | IC | 1 |  |
| IC708,09 |  | RH5RE50AA | IC | 2 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | COILS |  |  |
| L201-07 |  | ELJFC150KB | COIL 15UH | 7 |  |
| L208 |  | ELJSC330KB | COIL 33UH | 1 |  |
| L209 |  | ELJFC6R8ZB | COIL 6.8UH | 1 |  |
| L210 |  | ELJFC150KB | COIL 15UH | 1 |  |
| L211 |  | VLQ0426J101 | COIL 100UH | 1 |  |
| L212-14 |  | VLQ0576 | COIL | 3 |  |
| L215,16 |  | VLQ0401K4R7 | COIL 4.7UH | 2 |  |
| L301 |  | ELJFC6R8ZB | COIL 6.8UH | 1 |  |
| L302-04 |  | VLQ0426J101 | COIL 100UH | 3 |  |
| L305-11 |  | ELJFC6R8ZB | COIL 6.8UH | 7 |  |
| L314 |  | ELJFC6R8ZB | COIL 6.8UH | 1 |  |
| L316,17 |  | ELJFC6R8ZB | COIL 6.8UH | 2 |  |
| L319 |  | ELJFC6R8ZB | COIL 6.8UH | 1 |  |
| L320 |  | ELJSC330KB | COIL 33UH | 1 |  |
| L330 |  | VLQ0401K150 | COIL 15UH | 1 |  |
| L702 |  | ELJPA101KB | COIL 100UH | 1 |  |
| L703 |  | ELJFC150KB | COIL 15UH | 1 |  |
| L704 |  | ELJPA150KB | COIL 15UH | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

| Ref.No. |  | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
|  |  |  | TRANSISTORS |  |  |
| Q201 |  | XP4654 | TRANSISTOR | 1 |  |
| Q203,04 |  | 2SD2216 | TRANSISTOR | 2 |  |
| Q205 |  | XP4654 | TRANSISTOR | 1 |  |
| Q207 |  | XP4654 | TRANSISTOR | 1 |  |
| Q209 |  | 2SD2216 | TRANSISTOR | 1 |  |
| Q210 |  | 2SB1462 | TRANSISTOR | 1 |  |
| Q215 |  | XP4601 | TRANSISTOR-TRANSISTOR | 1 |  |
| Q217 |  | 2SC4627 | TRANSISTOR | 1 |  |
| Q218,19 |  | 2SA1790 | TRANSISTOR | 2 |  |
| Q220 |  | 2SB1462 | TRANSISTOR | 1 |  |
| Q305 |  | 2SC4176 | TRANSISTOR | 1 |  |
| Q701 |  | 2SD2216 | TRANSISTOR | 1 |  |
| Q702 |  | 2SB1219 | TRANSISTOR | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | COMBINATION PARTS |  |  |
| QR301 |  | UN9211 | TRANSISTOR-RESISTOR | 1 |  |
| QR701,02 |  | UN9211 | TRANSISTOR-RESISTOR | 2 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | RESISTORS |  |  |
| R201 |  | ERJ2GEJ105 | M.RESISTOR CH 2W 1M | 1 |  |
| R202 |  | ERJ2GEJ333 | M.RESISTOR CH 2W 33K | 1 |  |
| R203 |  | ERJ2GEJ183 | M.RESISTOR CH 2W 18K | 1 |  |
| R204 |  | ERJ2GEJ105 | M.RESISTOR CH 2W 1M | 1 |  |
| R205 |  | ERJ2GEJ333 | M.RESISTOR CH 2W 33K | 1 |  |
| R206 |  | ERJ3GEYJ181 | M.RESISTOR CH 1/16W 180 | 1 |  |
| R207 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 |  |
| R208 |  | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 1 |  |
| R209 |  | ERJ3GEYJ221 | M.RESISTOR CH 1/16W 220 | 1 |  |
| R210 |  | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 1 |  |
| R211 |  | ERJ2GEJ105 | M.RESISTOR CH 2W 1M | 1 |  |
| R212 |  | ERJ3GEYJ681 | M.RESISTOR CH 1/16W 680 | 1 |  |
| R213 |  | ERJ2GEJ821 | M.RESISTOR CH 2W 820 | 1 |  |
| R214,15 |  | ERJ3GEYJ681 | M.RESISTOR CH 1/16W 680 | 2 |  |
| R216 |  | ERJ2GEJ273 | M.RESISTOR CH 2W 27K | 1 |  |
| R217 |  | ERJ2GEJ105 | M.RESISTOR CH 2W 1M | 1 |  |
| R218 |  | ERJ3GEYJ101 | M.RESISTOR CH 1/16W 100 | 1 |  |
| R219 |  | ERJ2GEJ183 | M.RESISTOR CH 2W 18K | 1 |  |
| R227 |  | ERJ3GEY0R00 | M.RESISTOR CH 1/16W 0 | 1 |  |
| R228 |  | ERJ2GEJ274 | M.RESISTOR CH 2W 270K | 1 |  |
| R229 |  | ERJ3GEYJ681 | M.RESISTOR CH 1/16W 680 | 1 |  |
| R231 |  | ERJ2GEJ184 | M.RESISTOR CH 2W 180K | 1 |  |
| R232 |  | ERJ2GEJ124 | M.RESISTOR CH 2W 120K | 1 |  |
| R240 |  | ERJ2GEJ563 | M.RESISTOR CH 2W 56K | 1 |  |
| R241 |  | ERJ2GEJ272 | M.RESISTOR CH 2W 2.7K | 1 |  |
| R242 |  | ERJ2GEJ332 | M.RESISTOR CH 2W 3.3K | 1 |  |
| R243 |  | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 1 |  |
| R244 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 |  |
| R245 |  | ERJ2GEJ104 | M.RESISTOR CH 2W 100K | 1 |  |
| R246 |  | ERDS2TJ124 | C.RESISTOR 1/4W 120K | 1 |  |
| R251 |  | ERJ2GEJ563 | M.RESISTOR CH 2W 56K | 1 |  |
| R253 |  | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 1 |  |
| R255,56 |  | ERJ2GEJ101 | M.RESISTOR CH 2W 1K | 2 |  |
| R257 |  | ERJ2GEJ821 | M.RESISTOR CH 2W 820 | 1 |  |
| R258 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 |  |
| R262 |  | ERJ2GE0R00 | M.RESISTOR CH 2W 0 | 1 |  |
| R263 |  | ERJ3GEYJ331 | M.RESISTOR CH 1/16W 330 | 1 |  |
| R265 |  | ERJ6GEY0R00 | M.RESISTOR CH 1/10W 0 | 1 |  |
| R267 |  | ERJ6GEYJ271 | M.RESISTOR CH 1/10W 270 | 1 |  |
| R268,69 |  | ERJ2GE0R00 | M.RESISTOR CH 2W 0 | 2 |  |
| R270 |  | ERJ2GEJ123 | M.RESISTOR CH 2W 12K | 1 |  |
| R271 |  | ERJ2GEJ122 | M.RESISTOR CH 2W 1.2K | 1 |  |
| R272 |  | ERJ2GEJ821 | M.RESISTOR CH 2W 820 | 1 |  |
| R273,74 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 2 |  |
| R275 |  | ERJ2GEJ122 | M.RESISTOR CH 2W 1.2K | 1 |  |
| R276 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 |  |
| R277 |  | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 1 |  |
| R278 |  | ERJ2GEJ824 | M.RESISTOR CH 2W 820K | 1 |  |
| R280 |  | ERJ2GEJ222 | 4M.RESISTOR CH 2W 2.2K | 1 |  |
| R281 |  | ERJ2GEJ333 | M.RESISTOR CH 2W 33K | 1 |  |
| R282 |  | ERJ2GEJ153 | M.RESISTOR CH 2W 15K | 1 |  |
| R289 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 |  |
| R301 |  | ERJ2GEJ563 | M.RESISTOR CH 2W 56K | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

| Ref.No. | | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| R302,03 | | ERJ2GEJ223 | M.RESISTOR CH 2W 22K | 2 | |
| R305,06 | | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 2 | |
| R307 | | ERJ2GEJ273 | M.RESISTOR CH 2W 27K | 1 | |
| R308-10 | | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 3 | |
| R311 | | ERJ3GEYJ560 | M.RESISTOR CH 1/16W 56 | 1 | |
| R312 | | ERJ3GEYJ271 | M.RESISTOR CH 1/16W 270 | 1 | |
| R313 | | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 1 | |
| R318 | | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 1 | |
| R319 | | ERJ2GEJ562 | M.RESISTOR CH 2W 5.6K | 1 | |
| R320 | | ERJ3GEYJ121 | M.RESISTOR CH 1/16W 120 | 1 | |
| R321 | | ERJ3GEYJ101 | M.RESISTOR CH 1/16W 100 | 1 | |
| R322 | | ERJ3GEYJ121 | M.RESISTOR CH 1/16W 120 | 1 | |
| R323,24 | | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 2 | |
| R325,26 | | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 2 | |
| R328 | | ERJ2GE0R00 | M.RESISTOR CH 2W 0 | 1 | |
| R329 | | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 1 | |
| R330-32 | | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 3 | |
| R333,34 | | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 2 | |
| R335 | | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 1 | |
| R337 | | ERJ2GEJ153 | M.RESISTOR CH 2W 15K | 1 | |
| R338,39 | | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 2 | |
| R340 | | ERJ2GEJ153 | M.RESISTOR CH 2W 15K | 1 | |
| R341 | | ERJ2GEJ821 | M.RESISTOR CH 2W 820 | 1 | |
| R343-46 | | ERJ3GEYJ101 | M.RESISTOR CH 1/16W 100 | 4 | |
| R347 | | ERJ3GEYJ681 | M.RESISTOR CH 1/16W 680 | 1 | |
| R348-55 | | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 8 | |
| R356-71 | | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 16 | |
| R372-81 | | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 10 | |
| R382,83 | | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 2 | |
| R384 | | ERJ2GE0R00 | M.RESISTOR CH 2W 0 | 1 | |
| R387-91 | | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 5 | |
| R392 | | ERJ2GEJ122 | M.RESISTOR CH 2W 1.2K | 1 | |
| R393 | | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 1 | |
| R394 | | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 | |
| R396,97 | | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 2 | |
| R398 | | ERJ3GEYJ561 | M.RESISTOR CH 1/16W 560 | 1 | |
| R399 | | ERJ2GEJ471 | M.RESISTOR CH 2W 470 | 1 | |
| R400 | | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 | |
| R405-29 | | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 25 | |
| R430-37 | | ERJ2GEJ101 | M.RESISTOR CH 2W 1K | 8 | |
| R438-54 | | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 17 | |
| R456-78 | | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 23 | |
| R479-82 | | ERJ2GEJ101 | M.RESISTOR CH 2W 1K | 4 | |
| R483-86 | | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 4 | |
| R491-99 | | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 9 | |
| R701,02 | | ERJ2GEJ473 | M.RESISTOR CH 2W 47K | 2 | |
| R704,05 | | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 2 | |
| R706,07 | | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 2 | |
| R708 | | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 1 | |
| R710 | | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 1 | |
| R711 | | ERJ3GEYG103 | M.RESISTOR CH 1/16W 10K | 1 | |
| R712 | | ERJ3GEYG303 | M.RESISTOR CH 1/16W 30K | 1 | |
| R713 | | ERJ2GEJ124 | M.RESISTOR CH 2W 120K | 1 | |
| R714 | | ERJ2GEJ223 | M.RESISTOR CH 2W 22K | 1 | |
| R715 | | ERJ2GEJ124 | M.RESISTOR CH 2W 120K | 1 | |
| R716 | | ERJ2GEJ334 | M.RESISTOR CH 2W 330K | 1 | |
| R717 | | ERJ2GEJ562 | M.RESISTOR CH 2W 5.6K | 1 | |
| R718 | | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 1 | |
| R719 | | ERJ2GEJ154 | M.RESISTOR CH 2W 150K | 1 | |
| R720 | | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 1 | |
| R721 | | ERJ2GEJ225 | M.RESISTOR CH 2W 2.2M | 1 | |
| R722 | | ERJ2GEJ152 | M.RESISTOR CH 2W 1.5K | 1 | |
| R723 | | ERJ2GEJ222 | M.RESISTOR CH 2W 2.2K | 1 | |
| R724 | | ERJ2GEJ473 | M.RESISTOR CH 2W 47K | 1 | |
| R725 | | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 1 | |
| R726 | | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 | |
| R727 | | ERJ2GEJ123 | M.RESISTOR CH 2W 12K | 1 | |
| R728 | | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 | |
| R729 | | ERJ2GEJ123 | M.RESISTOR CH 2W 12K | 1 | |
| R730 | | ERJ2GEJ473 | M.RESISTOR CH 2W 47K | 1 | |
| R731 | | ERJ3GEYJ181 | M.RESISTOR CH 1/16W 180 | 1 | |
| R732 | | ERJ2GEJ222 | M.RESISTOR CH 2W 2.2K | 1 | |
| R733,34 | | ERJ3GEYJ3R3 | M.RESISTOR CH 1/16W 3.3K | 2 | |
| R735 | | ERJ2GEJ473 | M.RESISTOR CH 2W 47K | 1 | |
| R736 | | ERJ2GEJ823 | M.RESISTOR CH 2W 82K | 1 | |
| | | | | | |
| | | | | | |

| Ref.No. | | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| R738 | | ERJ2GEJ105 | M.RESISTOR CH 2W 1M | 1 | |
| R739 | | ERJ3GEYJ221 | M.RESISTOR CH 1/16W 220 | 1 | |
| R740 | | ERJ2GEJ332 | M.RESISTOR CH 2W 3.3K | 1 | |
| R741 | | ERJ2GEJ183 | M.RESISTOR CH 2W 18K | 1 | |
| R742 | | ERJ2GEJ473 | M.RESISTOR CH 2W 47K | 1 | |
| R743 | | ERJ2GEJ563 | M.RESISTOR CH 2W 56K | 1 | |
| R744 | | ERJ2GEJ223 | M.RESISTOR CH 2W 22K | 1 | |
| R745 | | ERJ2GEJ821 | M.RESISTOR CH 2W 820 | 1 | |
| R746 | | ERJ2GEJ223 | M.RESISTOR CH 2W 22K | 1 | |
| R747 | | ERJ3GEYJ221 | M.RESISTOR CH 1/16W 220 | 1 | |
| R748 | | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 1 | |
| R759 | | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 1 | |
| | | | | | |
| | | | | | |
| | | | VARIABLE RESISTORS | | |
| VR201 | | EVM7JSX10B25 | V.RESISTOR | 1 | |
| VR701 | | EVM7JSX10B54 | V.RESISTOR | 1 | |
| | | | | | |
| | | | | | |
| | | | CRYSTAL OSCILLATORS | | |
| X201 | | VSX0530 | CRYSTAL OSCILLATOR | 1 | |
| X301,02 | | EF0V8004B0A | CRYSTAL OSCILLATOR | 2 | |
| X701 | | EF0V6754B0A | CRYSTAL OSCILLATOR | 1 | |
| X702 | | EF0V8004B0A | CRYSTAL OSCILLATOR | 1 | |
| | | | | | |
| | | | | | |
| | | | MISCELLANEOUS | | |
| | | VYQ0758 | PROCESS SHIELD COVER UNIT | 1 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | ■ | VEP28054A | EVF C.B.A. | | (NLA) |
| | | | | | |
| | | | | | |
| | | | CAPACITORS | | |
| C801 | | ECWU1C104JA | P.CAPACITOR 16V 0.1U | 1 | |
| C802 | | ECST1AV476Z | T.CAPACITOR 10V 47U | 1 | |
| C803 | | ECUX1H151JCV | C.CAPACITOR CH 50V 150P | 1 | |
| C804 | | ECUM1C224ZFN | C.CAPACITOR 16V 0.22U | 1 | |
| C805 | | ECEV1CA470F | E.CAPACITOR 16V 47U | 1 | |
| C806 | | ECUM1H223KBN | C.CAPACITOR CH 50V 0.022U | 1 | |
| C807 | | ECUM1C105JBP | C.CAPACITOR CH 16V 1U | 1 | |
| C808 | | ECUM1C105ZFN | C.CAPACITOR 16V 1U | 1 | |
| C809 | | ECEV1CA470F | E.CAPACITOR 16V 47U | 1 | |
| C810 | | ECUM2A272JUM | C.CAPACITOR CH 10V 2700P | 1 | |
| C811 | | ECST1AV476Z | T.CAPACITOR 10V 47U | 1 | |
| C812 | | ECUX1H101JV | C.CAPACITOR CH 50V 100P | 1 | |
| C813 | | ECUM2H331KBM | C.CAPACITOR | 1 | |
| C814 | | ECEV1HAS010 | E.CAPACITOR CH 50V 1U | 1 | |
| C815 | | ECUM2H331KBM | C.CAPACITOR | 1 | |
| C816 | | ECUM1E104ZFN | C.CAPACITOR CH 25V 0.1U | 1 | |
| C818 | | ECUM2H331KBM | C.CAPACITOR | 1 | |
| C831 | | ECUM1E104ZFN | C.CAPACITOR CH 25V 0.1U | 1 | |
| | | | | | |
| | | | | | |
| | | | DIODES | | |
| D801 | | MA141A | DIODE | 1 | |
| D802 | | SFPL-52 | DIODE | 1 | |
| | | | | | |
| | | | | | |
| | | | INTEGRATED CIRCUITS | | |
| IC801 | | AN2514S | IC | 1 | |
| | | | | | |
| | | | | | |
| | | | COILS | | |
| L801 | | VLQ0469 | COIL | 1 | |
| L802 | | ELH5L220Y | COIL | 1 | |
| L803 | | VLQ0319K470 | COIL 47UH | 1 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| Ref.No. | | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| | | | CONNECTORS | | |
| P801 | | VJP3125D004 | CONNECTOR (MALE) | 1 | |
| P802,03 | | VJP3125D003 | CONNECTOR (MALE) | 2 | |
| P804 | | VJP1229T | CONNECTOR (MALE) 2P | 1 | |
| | | | | | |
| | | | | | |
| | | | TRANSISTORS | | |
| Q801 | | 2SB1218 | TRANSISTOR | 1 | |
| Q802 | | 2SD968A-S | TRANSISTOR | 1 | |
| Q803 | | 2SA1532-B | TRANSISTOR | 1 | |
| | | | | | |
| | | | | | |
| | | | RESISTORS | | |
| R801 | | ERJ6ENF4422 | M.RESISTOR | 1 | |
| R802 | | ERJ6GMYJ3R9 | M.RESISTOR CH 1/10W 3.9 | 1 | |
| R805 | | ERJ3GEYJ102 | M.RESISTOR CH 1/16W 1K | 1 | |
| R808 | | ERJ3GEYJ272 | M.RESISTOR CH 1/16W 2.7K | 1 | |
| R809 | | ERJ3GEYJ105 | M.RESISTOR CH 1/16W 1M | 1 | |
| R810 | | ERJ6GMYF104 | M.RESISTOR | 1 | |
| R812 | | ERJ3GEYJ102 | M.RESISTOR CH 1/16W 1K | 1 | |
| R813 | | ERJ3GEYJ391 | M.RESISTOR CH 1/16W 390 | 1 | |
| R814 | | ERJ3GEYJ222 | M.RESISTOR CH 1/16W 2.2K | 1 | |
| R815 | | ERJ3GEYJ332 | M.RESISTOR CH 1/16W 3.3K | 1 | |
| R816 | | ERJ3GEYJ472 | M.RESISTOR CH 1/16W 4.7K | 1 | |
| R817 | | ERJ3GEYJ242 | M.RESISTOR CH 1/16W 2.4K | 1 | |
| R818 | | ERJ3GEYJ153 | M.RESISTOR CH 1/16W 15K | 1 | |
| R819 | | ERJ6GMYJ395 | M.RESISTOR CH 1/10W 3.9M | 1 | |
| R820 | | ERJ6GMYJ475 | M.RESISTOR CH 1/10W 4.7M | 1 | |
| R821 | | ERJ6GMYJ105 | M.RESISTOR CH 1/10W 1M | 1 | |
| R823 | | ERJ3GEYJ3R9 | M.RESISTOR CH 1/16W 3.9 | 1 | |
| R826 | | ERJ3GEY0R00 | M.RESISTOR CH 1/16W 0 | 1 | |
| R831 | | ERJ3GEYJ105 | M.RESISTOR CH 1/16W 1M | 1 | |
| | | | | | |
| | | | | | |
| | | | TRANSFORMERS | | |
| T801 | | ETF08L12A | TRANSFORMER | 1 | |
| | | | | | |
| | | | | | |
| | | | VARIABLE RESISTORS | | |
| VR801 | | EVM7JSX30BE2 | V.RESISTOR | 1 | |
| VR802 | | EVM7JSX30B54 | V.RESISTOR 50K | 1 | |
| VR803 | | EVM7TSX00BV6 | V.RESISTOR | 1 | |
| VR804 | | EVM7TSX00BE6 | V.RESISTOR | 1 | |
| | | | | | |
| | | | | | |
| | | | MISCELLANEOUS | | |
| | | VEE7574 | CRT SOCKET UNIT | 1 | <!> |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | ■ | VEK5465 | MIC C.B.A. | | (NLA) |
| | | | | | |
| | | | | | |
| | | | CAPACITORS | | |
| C4301 | | ECUM1E273KBN | C.CAPACITOR CH 25V 0.027U | 1 | |
| C4302 | | ECUX1H102KBV | C.CAPACITOR CH 50V 1000P | 1 | |
| C4303 | | ECUX1H103KBV | C.CAPACITOR CH 50V 0.01U | 1 | |
| C4305,06 | | ECUX1H103KBV | C.CAPACITOR CH 50V 0.01U | 2 | |
| C4307 | | ECUM1C823KBN | C.CAPACITOR 16V 0.082U | 1 | |
| C4308 | | ECUX1H102KBV | C.CAPACITOR CH 50V 1000P | 1 | |
| C4309 | | ECUM1E273KBN | C.CAPACITOR CH 25V 0.027U | 1 | |
| C4310 | | ECUX1H271KBV | C.CAPACITOR CH 50V 270P | 1 | |
| C4311 | | ECST1CY105Z | T.CAPACITOR 16V 1U | 1 | |
| C4312 | | ECUM1E273KBN | C.CAPACITOR CH 25V 0.027U | 1 | |
| C4313 | | ECUX1H102KBV | C.CAPACITOR CH 50V 1000P | 1 | |
| C4314 | | ECUX1H103KBV | C.CAPACITOR CH 50V 0.01U | 1 | |
| C4316,17 | | ECUX1H103KBV | C.CAPACITOR CH 50V 0.01U | 2 | |
| C4318 | | ECST1CY105Z | T.CAPACITOR 16V 1U | 1 | |
| C4320 | | ECUX1H102KBV | C.CAPACITOR CH 50V 1000P | 1 | |
| C4321 | | ECEV0JV330S | E.CAPACITOR 6.3V 33U | 1 | |
| | | | | | |
| | | | | | |

| Ref.No. | | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| C4322 | | ECST1AY225Z | T.CAPACITOR 10V 2.2U | 1 | |
| C4324 | | ECEV0JV101S | E.CAPACITOR 6.3V 100U | 1 | |
| C4325 | | ECUX1H103KBV | C.CAPACITOR CH 50V 0.01U | 1 | |
| C4326 | | ECST1CY105Z | T.CAPACITOR 16V 1U | 1 | |
| C4328 | | ECUX1H102KBV | C.CAPACITOR CH 50V 1000P | 1 | |
| C4329 | | ECEV0JV330S | E.CAPACITOR 6.3V 33U | 1 | |
| C4330 | | ECST1AY225Z | T.CAPACITOR 10V 2.2U | 1 | |
| C4334 | | ECEV0GV101SP | E.CAPACITOR CH 4V 100U | 1 | |
| | | | | | |
| | | | | | |
| | | | DIODES | | |
| D4301-03 | | MA8056-M | DIODE | 3 | |
| | | | | | |
| | | | | | |
| | | | CONNECTORS | | |
| J4301 | | VJJ0319 | | 1 | |
| | | | | | |
| | | | | | |
| P4301 | | VJP3125D004 | CONNECTOR (MALE) | 1 | |
| | | | | | |
| | | | | | |
| | | | TRANSISTORS | | |
| Q4301 | | 2SD2216 | TRANSISTOR | 1 | |
| Q4302 | | 2SC3929 | TRANSISTOR | 1 | |
| Q4303,04 | | 2SD2216 | TRANSISTOR | 2 | |
| Q4305 | | 2SC3929 | TRANSISTOR | 1 | |
| Q4306 | | 2SD2216 | TRANSISTOR | 1 | |
| Q4307,08 | | 2SC3929 | TRANSISTOR | 2 | |
| Q4309,10 | | 2SD2216 | TRANSISTOR | 2 | |
| Q4311 | | 2SC3929 | TRANSISTOR | 1 | |
| Q4312 | | 2SD2216 | TRANSISTOR | 1 | |
| | | | | | |
| | | | | | |
| | | | RESISTORS | | |
| R4301 | | ERJ6GEYJ222 | M.RESISTOR CH 1/10W 2.2K | 1 | |
| R4302 | | ERJ6GEYJ104 | M.RESISTOR CH 1/10W 100K | 1 | |
| R4303 | | ERJ6GEYJ273 | M.RESISTOR CH 1/10W 27K | 1 | |
| R4304 | | ERJ3GEYJ682 | M.RESISTOR CH 1/16W 6.8K | 1 | |
| R4305 | | ERJ3GEYJ332 | M.RESISTOR CH 1/16W 3.3K | 1 | |
| R4306 | | ERJ3GEYJ104 | M.RESISTOR CH 1/16W 100K | 1 | |
| R4307 | | ERJ3GEYJ124 | M.RESISTOR CH 1/16W 120K | 1 | |
| R4308 | | ERJ3GEYJ222 | M.RESISTOR CH 1/16W 2.2K | 1 | |
| R4309 | | ERJ3GEYJ153 | M.RESISTOR CH 1/16W 15K | 1 | |
| R4311 | | ERJ3GEYJ153 | M.RESISTOR CH 1/16W 15K | 1 | |
| R4312 | | ERJ6GEYJ222 | M.RESISTOR CH 1/10W 2.2K | 1 | |
| R4313 | | ERJ6GEYJ104 | M.RESISTOR CH 1/10W 100K | 1 | |
| R4314 | | ERJ6GEYJ273 | M.RESISTOR CH 1/10W 27K | 1 | |
| R4315 | | ERJ3GEYJ682 | M.RESISTOR CH 1/16W 6.8K | 1 | |
| R4316 | | ERJ3GEYJ332 | M.RESISTOR CH 1/16W 3.3K | 1 | |
| R4317 | | ERJ3GEYJ154 | M.RESISTOR CH 1/16W 150K | 1 | |
| R4318 | | ERJ3GEYJ104 | M.RESISTOR CH 1/16W 100K | 1 | |
| R4319,20 | | ERJ3GEYJ103 | M.RESISTOR CH 1/16W 10K | 2 | |
| R4321 | | ERJ3GEYJ273 | M.RESISTOR CH 1/16W 27K | 1 | |
| R4322 | | ERJ3GEYJ222 | M.RESISTOR CH 1/16W 2.2K | 1 | |
| R4323 | | ERJ6GEYJ222 | M.RESISTOR CH 1/10W 2.2K | 1 | |
| R4324 | | ERJ6GEYJ104 | M.RESISTOR CH 1/10W 100K | 1 | |
| R4325 | | ERJ6GEYJ273 | M.RESISTOR CH 1/10W 27K | 1 | |
| R4326 | | ERJ3GEYJ682 | M.RESISTOR CH 1/16W 6.8K | 1 | |
| R4327 | | ERJ3GEYJ332 | M.RESISTOR CH 1/16W 3.3K | 1 | |
| R4328 | | ERJ3GEYJ104 | M.RESISTOR CH 1/16W 100K | 1 | |
| R4329 | | ERJ3GEYJ124 | M.RESISTOR CH 1/16W 120K | 1 | |
| R4330 | | ERJ3GEYJ222 | M.RESISTOR CH 1/16W 2.2K | 1 | |
| R4331 | | ERJ3GEYJ153 | M.RESISTOR CH 1/16W 15K | 1 | |
| R4333 | | ERJ3GEYJ153 | M.RESISTOR CH 1/16W 15K | 1 | |
| R4334 | | ERJ3GEYJ101 | M.RESISTOR CH 1/16W 100 | 1 | |
| R4335 | | ERJ6GEYJ104 | M.RESISTOR CH 1/10W 100K | 1 | |
| R4336 | | ERJ6GEYG563 | M.RESISTOR CH 1/10W 56K | 1 | |
| R4337 | | ERJ3GEYJ682 | M.RESISTOR CH 1/16W 6.8K | 1 | |
| R4338 | | ERJ3GEYJ561 | M.RESISTOR CH 1/16W 560 | 1 | |
| R4339,40 | | ERJ3GEYJ332 | M.RESISTOR CH 1/16W 3.3K | 2 | |
| R4341 | | ERJ3GEYJ333 | M.RESISTOR CH 1/16W 33K | 1 | |
| R4342 | | ERJ3GEYJ222 | M.RESISTOR CH 1/16W 2.2K | 1 | |
| R4343 | | ERJ3GEYJ101 | M.RESISTOR CH 1/16W 100 | 1 | |
| R4344 | | ERJ6GEYJ104 | M.RESISTOR CH 1/10W 100K | 1 | |
| R4345 | | ERJ6GEYG563 | M.RESISTOR CH 1/10W 56K | 1 | |
| | | | | | |
| | | | | | |

| Ref.No. | | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| R4346 | | ERJ3GEYJ682 | M.RESISTOR CH 1/16W 6.8K | 1 | |
| R4347 | | ERJ3GEYJ561 | M.RESISTOR CH 1/16W 560 | 1 | |
| R4348,49 | | ERJ3GEYJ332 | M.RESISTOR CH 1/16W 3.3K | 2 | |
| R4350 | | ERJ3GEYJ333 | M.RESISTOR CH 1/16W 33K | 1 | |
| R4351 | | ERJ3GEYJ221 | M.RESISTOR CH 1/16W 220 | 1 | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | ■ | VEP03939A | MAIN C.B.A. | | (NLA) |
| | | | | | |
| | | | | | |
| | | | CONNECTORS | | |
| B6001 | | VJP3126B034 | CONNECTOR (MALE) | 1 | |
| B6201 | | VJS2961C022 | CONNECTOR (FEMALE) | 1 | |
| | | | | | |
| | | | | | |
| | | | CAPACITORS | | |
| C3002 | | ECEV0GA470 | E.CAPACITOR CH 4V 47U | 1 | |
| C3003 | | ECEV0GA221 | E.CAPACITOR CH 4V 220U | 1 | |
| C3004 | | ECEV0GA471 | E.CAPACITOR CH 4V 470U | 1 | |
| C3005 | | ECUX1H180JCV | C.CAPACITOR CH 50V 18P | 1 | |
| C3006 | | ECUX1H271JCV | C.CAPACITOR CH 50V 270P | 1 | |
| C3007 | | ECUX1H820JCV | C.CAPACITOR CH 50V 82P | 1 | |
| C3008 | | ECUX1H271JCV | C.CAPACITOR CH 50V 270P | 1 | |
| C3009 | | ECUX1H221JCV | C.CAPACITOR CH 50V 220P | 1 | |
| C3010 | | ECUX1H271JCV | C.CAPACITOR CH 50V 270P | 1 | |
| C3011,12 | | ECST1AY475Z | T.CAPACITOR CH 10V 4.7U | 2 | |
| C3013 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 | |
| C3014 | | ECUX1H103ZFV | C.CAPACITOR CH 50V 0.01U | 1 | |
| C3015 | | ECUX1H560JCV | C.CAPACITOR CH 50V 56P | 1 | |
| C3016 | | ECUX1H471JCV | C.CAPACITOR CH 50V 470P | 1 | |
| C3017 | | ECUX1H560JCV | C.CAPACITOR CH 50V 56P | 1 | |
| C3018 | | ECUX1H103KBV | C.CAPACITOR CH 50V 0.01U | 1 | |
| C3019 | | ECUX1H120JCV | C.CAPACITOR CH 50V 12P | 1 | |
| C3021,22 | | ECUX1H220JCV | C.CAPACITOR CH 50V 22P | 2 | |
| C3023 | | ECUX1H103ZFV | C.CAPACITOR CH 50V 0.01U | 1 | |
| C3024 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 | |
| C3025 | | ECUM1C105ZFN | C.CAPACITOR 16V 1U | 1 | |
| C3026 | | ECUX1E103ZFQ | C.CAPACITOR CH 25V 0.01U | 1 | |
| C3027 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 | |
| C3028 | | ECUM1C105ZFN | C.CAPACITOR 16V 1U | 1 | |
| C3029 | | ECUX1H390JCV | C.CAPACITOR CH 50V 39P | 1 | |
| C3030 | | ECUX1H221JCV | C.CAPACITOR CH 50V 220P | 1 | |
| C3031 | | ECUX1H101JCV | C.CAPACITOR CH 50V 100P | 1 | |
| C3032 | | ECUX1H560JCV | C.CAPACITOR CH 50V 56P | 1 | |
| C3033,34 | | ECUX1H103ZFV | C.CAPACITOR CH 50V 0.01U | 2 | |
| C3036 | | ECUX1H330JCV | C.CAPACITOR CH 50V 33P | 1 | |
| C3037 | | ECUX1H220JCV | C.CAPACITOR CH 50V 22P | 1 | |
| C3042 | | ECUX1H680JCV | C.CAPACITOR CH 50V 68P | 1 | |
| C3043 | | ECUX1H820JCV | C.CAPACITOR CH 50V 82P | 1 | |
| C3045 | | ECUX1H330JCV | C.CAPACITOR CH 50V 33P | 1 | |
| C3047 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 | |
| C3048 | | ECUM1C105ZFN | C.CAPACITOR 16V 1U | 1 | |
| C3049 | | ECST1CY105Z | T.CAPACITOR 16V 1U | 1 | |
| C3050 | | ECUX1H222KBV | C.CAPACITOR CH 50V 2200P | 1 | |
| C3051 | | ECUX1H101JCV | C.CAPACITOR CH 50V 100P | 1 | |
| C3052 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 | |
| C3059 | | ECUX1H472KBV | C.CAPACITOR CH 50V 4700P | 1 | |
| C3060 | | ECUM1C475ZFM | C.CAPACITOR CH 16V 4.7U | 1 | |
| C3061 | | ECUX1H150JCV | C.CAPACITOR CH 50V 15P | 1 | |
| C3062 | | ECUX1H390JCV | C.CAPACITOR CH 50V 39P | 1 | |
| C3065 | | ECUX1E103ZFQ | C.CAPACITOR CH 25V 0.01U | 1 | |
| C3071 | | ECUX1H560JCV | C.CAPACITOR CH 50V 56P | 1 | |
| C3072 | | ECUX1E103ZFQ | C.CAPACITOR CH 25V 0.01U | 1 | |
| C3075 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 | |
| C3076 | | ECST1AY475Z | T.CAPACITOR CH 10V 4.7U | 1 | |
| C3080 | | ECUX1H820JCV | C.CAPACITOR CH 50V 82P | 1 | |
| C3081 | | ECUX1H220JCV | C.CAPACITOR CH 50V 22P | 1 | |
| | | | | | |
| | | | | | |

| Ref.No. | | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| C3085 | | ECUX1H100DCV | C.CAPACITOR CH 50V 10P | 1 | |
| C3203 | | ECUX1H121JCV | C.CAPACITOR CH 50V 120P | 1 | |
| C3204 | | ECEV0GA221 | E.CAPACITOR CH 4V 220U | 1 | |
| C3208 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 | |
| C3210 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 | |
| C3214 | | ECUM1E393KBN | C.CAPACITOR CH 25V 0.039U | 1 | |
| C3215 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 | |
| C3801 | | ECUM1C105ZFN | C.CAPACITOR 16V 1U | 1 | |
| C3802 | | ECUM1C104KBN | C.CAPACITOR CH 16V 0.1U | 1 | |
| C3803 | | ECUM1C105ZFN | C.CAPACITOR 16V 1U | 1 | |
| C3804 | | ECUX1H101JCV | C.CAPACITOR CH 50V 100P | 1 | |
| C3805 | | ECUM1C475ZFM | C.CAPACITOR CH 16V 4.7U | 1 | |
| C3806,07 | | ECUX1H101JCV | C.CAPACITOR CH 50V 100P | 2 | |
| C3808,09 | | ECUX1H270JCV | C.CAPACITOR CH 50V 27P | 2 | |
| C3810 | | ECST0JC336Z | T.CAPACITOR 6.3V 33U | 1 | |
| C3811,12 | | ECUX1E103ZFQ | C.CAPACITOR CH 25V 0.01U | 2 | |
| C3813 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 | |
| C3814 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 | |
| C3816 | | ECUX1H103ZFV | C.CAPACITOR CH 50V 0.01U | 1 | |
| C3818 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 | |
| C4003 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 | |
| C4004 | | ECST1CY335Z | T.CAPACITOR 16V 3.3U | 1 | |
| C4006 | | ECUM1H562KBN | C.CAPACITOR CH 50V 5600P | 1 | |
| C4007 | | ECUX1H822KBV | C.CAPACITOR CH 50V 8200P | 1 | |
| C4009 | | ECST1CY225Z | T.CAPACITOR 16V 2.2U | 1 | |
| C4010 | | ECUX1H272KBV | C.CAPACITOR CH 50V 2700P | 1 | |
| C4011 | | ECUX1H122KBV | C.CAPACITOR CH 50V 1200P | 1 | |
| C4012 | | ECUX1H151JCV | C.CAPACITOR CH 50V 150P | 1 | |
| C4013 | | ECST1CY225Z | T.CAPACITOR 16V 2.2U | 1 | |
| C4014 | | ECUX1C153KBV | C.CAPACITOR CH 16V 0.015U | 1 | |
| C4015 | | ECEV0GA470 | E.CAPACITOR CH 4V 47U | 1 | |
| C4017,18 | | ECST1CY335Z | T.CAPACITOR 16V 3.3U | 2 | |
| C4019 | | ECST1AY475Z | T.CAPACITOR CH 10V 4.7U | 1 | |
| C4021 | | ECST0GC476Z | T.CAPACITOR CH 4V 47U | 1 | |
| C4022 | | ECST1AX106Z | T.CAPACITOR 10V 10U | 1 | |
| C4023 | | ECUM1H223KBN | C.CAPACITOR CH 50V 0.022U | 1 | |
| C4024 | | ECUX1C123KBV | C.CAPACITOR CH 16V 0.012U | 1 | |
| C4025 | | ECUM2A682JCM | C.CAPACITOR CH 10V 6800P | 1 | |
| C4026 | | ECUX1H391JCV | C.CAPACITOR CH 50V 390P | 1 | |
| C4035 | | ECUM1H123KBN | C.CAPACITOR CH 50V 0.012U | 1 | |
| C4036,37 | | ECST1CY335Z | T.CAPACITOR 16V 3.3U | 2 | |
| C4038,39 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 2 | |
| C4045 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 | |
| C4046 | | ECST1CY225Z | T.CAPACITOR 16V 2.2U | 1 | |
| C4047,48 | | ECUX1H561JV | C.CAPACITOR CH 50V 560P | 2 | |
| C4049 | | ECUX1H221JCV | C.CAPACITOR CH 50V 220P | 1 | |
| C4050 | | ECUX1H122KBV | C.CAPACITOR CH 50V 1200P | 1 | |
| C4052 | | ECUX1H472KBV | C.CAPACITOR CH 50V 4700P | 1 | |
| C4053 | | ECUM1H392KBN | C.CAPACITOR CH 50V 3900P | 1 | |
| C4054 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 | |
| C4055 | | ECUM1H104ZFN | C.CAPACITOR CH 50V 0.1U | 1 | |
| C4057 | | ECUM1C104KBN | C.CAPACITOR CH 16V 0.1U | 1 | |
| C4501,02 | | ECEV0GA470 | E.CAPACITOR CH 4V 47U | 2 | |
| C4503,04 | | ECEV1CA100 | E.CAPACITOR 16V 10U | 2 | |
| C4507 | | ECUX1H102KBV | C.CAPACITOR CH 50V 1000P | 1 | |
| C4508 | | ECUX1H471JCV | C.CAPACITOR CH 50V 470P | 1 | |
| C4509 | | ECUX1E103ZFQ | C.CAPACITOR CH 25V 0.01U | 1 | |
| C4511 | | ECEV0JA470 | E.CAPACITOR 6.3V 47U | 1 | |
| C4513 | | ECST1CY335Z | T.CAPACITOR 16V 3.3U | 1 | |
| C4515 | | ECST0GC476Z | T.CAPACITOR CH 4V 47U | 1 | |
| C4516 | | ECST0JX226Z | T.CAPACITOR 6.3V 22U | 1 | |
| C4517 | | ECST0JC336Z | T.CAPACITOR 6.3V 33U | 1 | |
| C4518 | | ECST0GC476Z | T.CAPACITOR CH 4V 47U | 1 | |
| C4519,20 | | ECUX1H562KBV | C.CAPACITOR CH 50V 5600P | 2 | |
| C4521 | | ECST1AX106Z | T.CAPACITOR 10V 10U | 1 | |
| C4523 | | ECUX1H330JCV | C.CAPACITOR CH 50V 33P | 1 | |
| C4524 | | ECUX1H220JCV | C.CAPACITOR CH 50V 22P | 1 | |
| C4525 | | ECUX1H181JCV | C.CAPACITOR CH 50V 180P | 1 | |
| C5001 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 | |
| C5002,03 | | ECUX1H103ZFV | C.CAPACITOR CH 50V 0.01U | 2 | |
| C5004-11 | | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 8 | |
| C5012-15 | | ECUX1H220JCV | C.CAPACITOR CH 50V 22P | 4 | |
| C5016-23 | | ECUM1C105ZFN | C.CAPACITOR 16V 1U | 8 | |
| C5024 | | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 | |
| C5025-27 | | ECUX1H103ZFV | C.CAPACITOR CH 50V 0.01U | 3 | |
| | | | | | |
| | | | | | |

| Ref.No. |  | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| C5028 |  | ECUM1H273KBN | C.CAPACITOR CH 50V 0.027U | 1 |  |
| C5029 |  | ECUX1H822KBV | C.CAPACITOR CH 50V 8200P | 1 |  |
| C5030,31 |  | ECUX1H103ZFV | C.CAPACITOR CH 50V 0.01U | 2 |  |
| C5032 |  | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 |  |
| C5033 |  | ECUX1H103ZFV | C.CAPACITOR CH 50V 0.01U | 1 |  |
| C5034 |  | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 |  |
| C5035 |  | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 |  |
| C5036-39 |  | ECUX1H103ZFV | C.CAPACITOR CH 50V 0.01U | 4 |  |
| C5040-43 |  | ECUX1H681KBV | C.CAPACITOR CH 50V 680P | 4 |  |
| C5044-47 |  | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 4 |  |
| C5048-51 |  | ECUX1H103ZFV | C.CAPACITOR CH 50V 0.01U | 4 |  |
| C5052 |  | ECUX1H121JCV | C.CAPACITOR CH 50V 120P | 1 |  |
| C5053 |  | ECUX1H151JCV | C.CAPACITOR CH 50V 150P | 1 |  |
| C5054 |  | ECUX1H390JCV | C.CAPACITOR CH 50V 39P | 1 |  |
| C5055,56 |  | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 2 |  |
| C5062-65 |  | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 4 |  |
| C5066 |  | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 |  |
| C5067 |  | ECUX1H103ZFV | C.CAPACITOR CH 50V 0.01U | 1 |  |
| C5072 |  | ECUX1C123KBV | C.CAPACITOR CH 16V 0.012U | 1 |  |
| C5073 |  | ECUM1C683KBN | C.CAPACITOR 16V 0.068U | 1 |  |
| C5080 |  | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 |  |
| C5081 |  | ECUX1H103ZFV | C.CAPACITOR CH 50V 0.01U | 1 |  |
| C5085 |  | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 |  |
| C6001,02 |  | ECUX1H100DCV | C.CAPACITOR CH 50V 10P | 2 |  |
| C6003,04 |  | ECUX1H330JCV | C.CAPACITOR CH 50V 33P | 2 |  |
| C6005 |  | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 |  |
| C6006 |  | ECST0JX226Z | T.CAPACITOR 6.3V 22U | 1 |  |
| C6007 |  | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 |  |
| C6008 |  | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 |  |
| C6009-13 |  | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 5 |  |
| C6014 |  | ECUM1C225ZFM | C.CAPACITOR CH 16V 2.2U | 1 |  |
| C6015 |  | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 |  |
| C6016 |  | ECEV1CA220 | E.CAPACITOR CH 16V 22U | 1 |  |
| C6017 |  | ECUX1E103ZFQ | C.CAPACITOR CH 25V 0.01U | 1 |  |
| C6018 |  | ECUM1C105KBM | C.CAPACITOR CH 16V 1U | 1 |  |
| C6019,20 |  | ECUM1C105ZFN | C.CAPACITOR 16V 1U | 2 |  |
| C6021-24 |  | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 4 |  |
| C6025 |  | ECUX1H560JCV | C.CAPACITOR CH 50V 56P | 1 |  |
| C6026 |  | ECST1AV476Z | T.CAPACITOR 10V 47U | 1 |  |
| C6101 |  | ECUX1H330JCV | C.CAPACITOR CH 50V 33P | 1 |  |
| C6102 |  | ECRJA030E11 | TRIMMER |  | 1 |
| C6104 |  | ECUM1C474ZFN | C.CAPACITOR 16V 0.47U | 1 |  |
| C6105 |  | ECUX1H103ZFV | C.CAPACITOR CH 50V 0.01U | 1 |  |
| C6107 |  | ECUX1H330JCV | C.CAPACITOR CH 50V 33P | 1 |  |
| C6108 |  | ECRJA030E11 | TRIMMER | 1 |  |
| C6109 |  | ECEV1CA100 | E.CAPACITOR 16V 10U | 1 |  |
| C6110 |  | ECUM1H104ZFN | C.CAPACITOR CH 50V 0.1U | 1 |  |
| C6111 |  | ECUX1H050CCV | C.CAPACITOR CH 50V 5P | 1 |  |
| C6113 |  | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 |  |
| C6116 |  | ECEV0GA221 | E.CAPACITOR CH 4V 220U | 1 |  |
| C6117 |  | ECUX1H390JCV | C.CAPACITOR CH 50V 39P | 1 |  |
| C6119 |  | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 |  |
| C6121 |  | ECUX1H222KBV | C.CAPACITOR CH 50V 2200P | 1 |  |
| C6201 |  | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 |  |
| C6202 |  | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 |  |
| C6205 |  | ECUX1H103KBV | C.CAPACITOR CH 50V 0.01U | 1 |  |
| C6206 |  | ECUX1H223ZFV | C.CAPACITOR CH 50V 0.022U | 1 |  |
| C6207 |  | ECEV1CA2100 | E.CAPACITOR CH 16V 10U | 1 |  |
| C6208 |  | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 |  |
| C6209 |  | ECUX1H561KBV | C.CAPACITOR CH 50V 560P | 1 |  |
| C6210,11 |  | ECUM1C105KBM | C.CAPACITOR CH 16V 1U | 2 |  |
| C6212 |  | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 |  |
| C6213 |  | ECQB1C273JA | CAPACITOR CH 16V 0.027U | 1 |  |
| C6214 |  | ECUM1C105ZFN | C.CAPACITOR 16V 1U | 1 |  |
| C6215 |  | ECUX1E472ZFQ | C.CAPACITOR CH 25V 4700P | 1 |  |
| C6216 |  | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 |  |
| C6217,18 |  | ECST0GY156Z | T.CAPACITOR CH 4V 15U | 2 |  |
| C6220 |  | ECUM1C224ZFN | C.CAPACITOR 16V 0.22U | 1 |  |
| C8002 |  | ECUX1H060CCV | C.CAPACITOR CH 50V 10P | 1 |  |
| C8003 |  | ECUX1H100DCV | C.CAPACITOR CH 50V 10P | 1 |  |
| C8004 |  | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 |  |
| C8005 |  | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 |  |
| C8015 |  | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 |  |
| C8016 |  | ECUX1E103ZFQ | C.CAPACITOR CH 25V 0.01U | 1 |  |
| C8017 |  | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

| Ref.No. |  | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| C8040 |  | ECUX1H271JCV | C.CAPACITOR CH 50V 270P | 1 |  |
| C8048 |  | ECUX1H332KBV | C.CAPACITOR CH 50V 3300P | 1 |  |
| C8049 |  | ECST0JY475Z | T.CAPACITOR 6.3V 4.7U | 1 |  |
| C8062,63 |  | ECUX1H181JCV | C.CAPACITOR CH 50V 180P | 2 |  |
| C8066 |  | ECUX1H102KBV | C.CAPACITOR CH 50V 1000P | 1 |  |
| C8071 |  | ECUX1H182KBV | C.CAPACITOR CH 50V 1800P | 1 |  |
| C8072 |  | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 |  |
| C8074 |  | ECUM1C105ZFN | C.CAPACITOR 16V 1U | 1 |  |
| C8076 |  | ECUM1C105ZFN | C.CAPACITOR 16V 1U | 1 |  |
| C8101 |  | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 |  |
| C8102 |  | ECUX1H330JCV | C.CAPACITOR CH 50V 33P | 1 |  |
| C8103 |  | ECUX1H120JCV | C.CAPACITOR CH 50V 12P | 1 |  |
| C8104 |  | ECUX1H103ZFV | C.CAPACITOR CH 50V 0.01U | 1 |  |
| C8105 |  | ECUX1H470JCV | C.CAPACITOR CH 50V 47P | 1 |  |
| C8107 |  | ECUX1H820JCV | C.CAPACITOR CH 50V 82P | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | DIODES |  |  |
| D3201,02 |  | MA132WK | DIODE | 2 |  |
| D3203 |  | MA132K | DIODE | 1 |  |
| D3204 |  | MA133 | DIODE | 1 |  |
| D4002 |  | MA132K | DIODE | 1 |  |
| D5001 |  | MA159 | DIODE | 1 |  |
| D5002 |  | MA132WA | DIODE | 1 |  |
| D5003 |  | MA159 | DIODE | 1 |  |
| D5004 |  | MA132WA | DIODE | 1 |  |
| D5005 |  | MA133 | DIODE | 1 |  |
| D5006-09 |  | MA728 | DIODE | 4 |  |
| D6001 |  | MA133 | DIODE | 1 |  |
| D6002 |  | MA132K | DIODE | 1 |  |
| D6003 |  | MA132WK | DIODE | 1 |  |
| D6005 |  | MA3100 | DIODE | 1 |  |
| D6007 |  | MA728 | DIODE | 1 |  |
| D6009 |  | MA728 | DIODE | 1 |  |
| D6010,11 |  | MA736 | DIODE | 2 |  |
| D6012 |  | MA132K | DIODE | 1 |  |
| D6013 |  | MA728 | DIODE | 1 |  |
| D6101 |  | MA132K | DIODE | 1 |  |
| D6103-05 |  | MA132K | DIODE | 3 |  |
| D6110-12 |  | MA132K | DIODE | 3 |  |
| D8001 |  | MA132WK | DIODE | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | FILTERS |  |  |
| FL4501 |  | VLF0934T | FILTER | 1 |  |
| FL4502 |  | VLF0935T | FILTER | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | CONNECTORS |  |  |
| FP3001 |  | VJS2960A012 | CONNECTOR (FEMALE) | 1 |  |
| FP3002 |  | VJS2960A008 | CONNECTOR (FEMALE) | 1 |  |
| FP3003 |  | VJS2960A018 | CONNECTOR (FEMALE) | 1 |  |
| FP4001 |  | VJS2960A009 | CONNECTOR (FEMALE) | 1 |  |
| FP5001 |  | VJS2959B023 | CONNECTOR (FEMALE) | 1 |  |
| FP6001 |  | VJS2959B016 | CONNECTOR (FEMALE) | 1 |  |
| FP6002 |  | VJS2959B006 | CONNECTOR (FEMALE) | 1 |  |
| FP6101 |  | VJS2960A018 | CONNECTOR (FEMALE) | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | INTEGRATED CIRCUITS |  |  |
| IC3001 |  | VEFH25B | IC | 1 |  |
| IC3002 |  | TL8809FEL | IC | 1 |  |
| IC3003 |  | AN3298NSB | IC | 1 |  |
| IC3005 |  | BA7062F | IC | 1 |  |
| IC3801 |  | CF77544AFR | IC | 1 |  |
| IC3803 |  | MN12821R | IC | 1 | (R) |
| IC4001 |  | AN3998FAP | IC | 1 |  |
| IC4501 |  | VEFH27B | IC | 1 |  |
| IC5001 |  | AN3350FHP | IC | 1 |  |
| IC6001 |  | MN6755242V4C | IC | 1 |  |
| IC6002 |  | RH5RE38AA | IC | 1 |  |
| IC6003 |  | MN12821R | IC | 1 | (R) |
| IC6004 |  | M54543AFP | IC | 1 |  |
| IC6005 |  | TC4S66F | IC | 1 |  |
| IC6006,07 |  | LM393DB | IC | 2 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

| Ref.No. |  | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| IC6008,09 |  | TC7W00F | IC | 2 |  |
| IC6010,11 |  | TC7S08F | IC | 2 |  |
| IC6012 |  | LM393DB | IC | 1 |  |
| IC6013 |  | S81250HGRD | IC | 1 |  |
| IC6101 |  | TC4W53F | IC | 1 |  |
| IC6102 |  | TC7W04F | IC | 1 |  |
| IC6103 |  | UPD17401G534 | IC | 1 |  |
| IC6104 |  | S8420BF | IC | 1 |  |
| IC8001 |  | VEFH26B | IC | 1 |  |
| IC8002 |  | TL8833FTP1 | IC | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | COILS |  |  |
| L3001,02 |  | VLQ0319K101 | COIL 100UH | 2 |  |
| L3003 |  | VLQ0426J560 | COIL 56UH | 1 |  |
| L3004 |  | VLQ0426J150 | COIL 15UH | 1 |  |
| L3005 |  | ELJFA121JB | COIL 120UH | 1 |  |
| L3006 |  | VLQ0426J3R9 | COIL 3.9UH | 1 |  |
| L3007 |  | VLQ0426J150 | COIL 15UH | 1 |  |
| L3009 |  | VLQ0319F150 | COIL 15UH | 1 |  |
| L3010 |  | VLQ0426J470 | COIL 47UH | 1 |  |
| L3011 |  | VLQ0426J120 | COIL 12UH | 1 |  |
| L3012 |  | VLQ0426J100 | COIL 10UH | 1 |  |
| L3015 |  | VLQ0426J560 | COIL 56UH | 1 |  |
| L3017 |  | VLQ0426J330 | COIL 33UH | 1 |  |
| L3018 |  | VLQ0319F150 | COIL 15UH | 1 |  |
| L3019 |  | VLQ0319K101 | COIL 100UH | 1 |  |
| L3021 |  | VLQ0426J330 | COIL 33UH | 1 |  |
| L3024 |  | VLQ0319K101 | COIL 100UH | 1 |  |
| L3025 |  | VLQ0426J6R8 | COIL 6.8UH | 1 |  |
| L3026 |  | VLQ0426J100 | COIL 10UH | 1 |  |
| L3801 |  | VLQ0426J150 | COIL 15UH | 1 |  |
| L4001 |  | ELTMR153KF | COIL | 1 |  |
| L4003 |  | VLQ0319K101 | COIL 100UH | 1 |  |
| L4502,03 |  | VLQ0319K101 | COIL 100UH | 2 |  |
| L4504 |  | VLQ0426J560 | COIL 56UH | 1 |  |
| L5001-03 |  | VLQ0319F150 | COIL 15UH | 3 |  |
| L5004 |  | VLQ0319K101 | COIL 100UH | 1 |  |
| L5005 |  | VLQ0163J120 | COIL 12UH | 1 |  |
| L5006,07 |  | VLQ0319F150 | COIL 15UH | 2 |  |
| L5010 |  | VLQ0319F150 | COIL 15UH | 1 |  |
| L6002 |  | VLQ0319K100 | COIL 10UH | 1 |  |
| L6101 |  | VLQ0426J560 | COIL 56UH | 1 |  |
| L8001 |  | VLQ0426J270 | COIL 27UH | 1 |  |
| L8002,03 |  | VLQ0426J100 | COIL 10UH | 2 |  |
| L8004 |  | VLQ0319F150 | COIL 15UH | 1 |  |
| L8006 |  | VLQ0426J330 | COIL 33UH | 1 |  |
| L8007 |  | VLQ0426J150 | COIL 15UH | 1 |  |
| L8012 |  | VLQ0319F150 | COIL 15UH | 1 |  |
| L8013 |  | VLQ0426J390 | COIL 39UH | 1 |  |
| L8014 |  | VLQ0163J151 | COIL 150UH | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | CONNECTORS |  |  |
| P4001 |  | VJP3125D004 | CONNECTOR (MALE) | 1 |  |
| P6001 |  | VJP3125D002 | CONNECTOR (MALE) | 1 |  |
| P6101 |  | VJP3125B007 | CONNECTOR (MALE) | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | TRANSISTORS |  |  |
| Q3001 |  | 2SB970X | TRANSISTOR | 1 |  |
| Q3003 |  | 2SC4627 | TRANSISTOR | 1 |  |
| Q3004-06 |  | 2SD2216 | TRANSISTOR | 3 |  |
| Q3008-10 |  | 2SC4627 | TRANSISTOR | 3 |  |
| Q3011 |  | 2SB1462 | TRANSISTOR | 1 |  |
| Q3012 |  | 2SD2216 | TRANSISTOR | 1 |  |
| Q3014 |  | 2SB1462 | TRANSISTOR | 1 |  |
| Q3203 |  | 2SB1462 | TRANSISTOR | 1 |  |
| Q3801 |  | 2SD2216 | TRANSISTOR | 1 |  |
| Q3802,03 |  | 2SB1462 | TRANSISTOR | 2 |  |
| Q3804 |  | 2SB970X | TRANSISTOR | 1 |  |
| Q4001 |  | 2SD2216 | TRANSISTOR | 1 |  |
| Q4002 |  | 2SB1463-R | TRANSISTOR | 1 |  |
| Q4003 |  | XP6501 | TRANSISTOR | 1 |  |
| Q4005 |  | 2SB1219-R | TRANSISTOR | 1 | (Q,R) |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

| Ref.No. |  | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| Q4006 |  | 2SD602-R | TRANSISTOR | 1 | (R) |
| Q4010 |  | 2SD2216 | TRANSISTOR | 1 |  |
| Q4011 |  | 2SB1462 | TRANSISTOR | 1 |  |
| Q4012 |  | XP6401 | TRANSISTOR | 1 |  |
| Q4013-15 |  | 2SB1462 | TRANSISTOR | 3 |  |
| Q4016 |  | 2SD2216 | TRANSISTOR | 1 |  |
| Q4017 |  | 2SD2216-R | TRANSISTOR | 1 |  |
| Q4018 |  | XP4601 | TRANSISTOR-TRANSISTOR | 1 |  |
| Q4019 |  | 2SD2216-R | TRANSISTOR | 1 |  |
| Q5001,02 |  | XN4506 | TRANSISTOR | 2 |  |
| Q5003 |  | 2SB970X | TRANSISTOR | 1 |  |
| Q5004,05 |  | 2SA812 | TRANSISTOR | 2 |  |
| Q5006,07 |  | XN4504 | TRANSISTOR-TRANSISTOR | 2 |  |
| Q5008,09 |  | 2SD1328 | TRANSISTOR CHIP | 2 |  |
| Q5010 |  | 2SB970X | TRANSISTOR | 1 |  |
| Q6001 |  | 2SD2216 | TRANSISTOR | 1 |  |
| Q6101 |  | XP1501 | TRANSISTOR-TRANSISTOR | 1 |  |
| Q6105 |  | 2SB1462 | TRANSISTOR | 1 |  |
| Q6106 |  | 2SK198 | TRANSISTOR CHIP | 1 |  |
| Q6201 |  | 2SB1462 | TRANSISTOR | 1 |  |
| Q8001 |  | 2SD2216 | TRANSISTOR | 1 |  |
| Q8002 |  | 2SC4627 | TRANSISTOR | 1 |  |
| Q8009 |  | 2SB1462 | TRANSISTOR | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | COMBINATION PARTS |  |  |
| QR3001 |  | UN9212 | TRANSISTOR-RESISTOR | 1 |  |
| QR3002 |  | UN9213 | TRANSISTOR-RESISTOR | 1 |  |
| QR3004 |  | UN9211 | TRANSISTOR-RESISTOR | 1 |  |
| QR3005 |  | UN9213 | TRANSISTOR-RESISTOR | 1 |  |
| QR3006 |  | UN9212 | TRANSISTOR-RESISTOR | 1 |  |
| QR3009,10 |  | UN9212 | TRANSISTOR-RESISTOR | 2 |  |
| QR3013,14 |  | UN9212 | TRANSISTOR-RESISTOR | 2 |  |
| QR3016 |  | UN9212 | TRANSISTOR-RESISTOR | 1 |  |
| QR3017 |  | UN9213 | TRANSISTOR-RESISTOR | 1 |  |
| QR3019 |  | UN9212 | TRANSISTOR-RESISTOR | 1 |  |
| QR3202,03 |  | UN9211 | TRANSISTOR-RESISTOR | 2 |  |
| QR3204,05 |  | UN9212 | TRANSISTOR-RESISTOR | 2 |  |
| QR3801 |  | UN9213 | TRANSISTOR-RESISTOR | 1 |  |
| QR3802,03 |  | XP1211 | TRANSISTOR-RESISTOR | 2 |  |
| QR4001 |  | UN9113 | TRANSISTOR-RESISTOR | 1 |  |
| QR4003 |  | UN9213 | TRANSISTOR-RESISTOR | 1 |  |
| QR4004 |  | UN9217 | TRANSISTOR-RESISTOR | 1 |  |
| QR4005 |  | UN9112 | TRANSISTOR-RESISTOR | 1 |  |
| QR4006 |  | UN9210 | TRANSISTOR-RESISTOR | 1 |  |
| QR5001 |  | UN9213 | TRANSISTOR-RESISTOR | 1 |  |
| QR5002,03 |  | UN9212 | TRANSISTOR-RESISTOR | 2 |  |
| QR5004 |  | XP1213 | TWIN TRANSISTOR | 1 |  |
| QR5010 |  | UN9213 | TRANSISTOR-RESISTOR | 1 |  |
| QR6001 |  | UN9112 | TRANSISTOR-RESISTOR | 1 |  |
| QR6002 |  | XN4130X | TRANSISTOR-RESISTOR | 1 |  |
| QR6003 |  | XN1213 | TWIN TRANSISTOR | 1 |  |
| QR6005 |  | UN9210 | TRANSISTOR-RESISTOR | 1 |  |
| QR6006 |  | FN3L4Z | RESISTOR-RESISTOR | 1 |  |
| QR6010 |  | UN9115 | TRANSISTOR-RESISTOR | 1 |  |
| QR6013 |  | UN9213 | TRANSISTOR-RESISTOR | 1 |  |
| QR6014 |  | UN9212 | TRANSISTOR-RESISTOR | 1 |  |
| QR6015 |  | UN2130X | TRANSISTOR-RESISTOR | 1 |  |
| QR6017 |  | UN9111 | TRANSISTOR-RESISTOR | 1 |  |
| QR6018 |  | UN9213 | TRANSISTOR-RESISTOR | 1 |  |
| QR6019 |  | UN9215 | TRANSISTOR-RESISTOR | 1 |  |
| QR8101 |  | UN9212 | TRANSISTOR-RESISTOR | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | RESISTORS |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| R3001 |  | ERJ2GEJ222 | M.RESISTOR CH 2W 2.2K | 1 |  |
| R3002 |  | ERJ2GEJ152 | M.RESISTOR CH 2W 1.5K | 1 |  |
| R3003,04 |  | ERJ3GEYG102 | M.RESISTOR CH 1/16W 1K | 2 |  |
| R3005 |  | ERJ3GEYG471 | M.RESISTOR CH 1/16W 470 | 1 |  |
| R3006 |  | ERJ3GEYG332 | M.RESISTOR CH 1/16W 3.3K | 1 |  |
| R3007 |  | ERJ3GEYG152 | M.RESISTOR CH 1/16W 1.5K | 1 |  |
| R3008 |  | ERJ3GEYG332 | M.RESISTOR CH 1/16W 3.3K | 1 |  |
| R3010 |  | ERJ2GEJ152 | M.RESISTOR CH 2W 1.5K | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

| Ref.No. |  | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| R3011 |  | ERJ2GEJ682 | M.RESISTOR CH 2W 6.8K | 1 |  |
| R3012 |  | ERJ2GEJ222 | M.RESISTOR CH 2W 2.2K | 1 |  |
| R3013 |  | ERJ2GEJ392 | M.RESISTOR CH 2W 3.9K | 1 |  |
| R3014,15 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 2 |  |
| R3016 |  | ERJ3GEY0R00 | M.RESISTOR CH 1/16W 0 | 1 |  |
| R3017 |  | ERJ3GEYJ331 | M.RESISTOR CH 1/16W 330 | 1 |  |
| R3018 |  | ERJ3GEYJ122 | M.RESISTOR CH 1/16W 1.2K | 1 |  |
| R3021 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 |  |
| R3022 |  | ERJ2GEJ182 | M.RESISTOR CH 2W 1.8K | 1 |  |
| R3023 |  | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 1 |  |
| R3024 |  | ERJ2GEJ821 | M.RESISTOR CH 2W 820 | 1 |  |
| R3025 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 |  |
| R3026 |  | ERJ2GEJ272 | M.RESISTOR CH 2W 2.7K | 1 |  |
| R3028 |  | ERJ2GEJ681 | M.RESISTOR CH 2W 680 | 1 |  |
| R3029,30 |  | ERJ2GEJ223 | M.RESISTOR CH 2W 22K | 2 |  |
| R3031 |  | ERJ3GEYJ221 | M.RESISTOR CH 1/16W 220 | 1 |  |
| R3032 |  | ERJ3GEYJ181 | M.RESISTOR CH 1/16W 180 | 1 |  |
| R3033 |  | ERJ2GEJ561 | M.RESISTOR CH 2W 560 | 1 |  |
| R3042 |  | ERJ2GEJ681 | M.RESISTOR CH 2W 680 | 1 |  |
| R3043 |  | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 1 |  |
| R3045 |  | ERJ2GEJ392 | M.RESISTOR CH 2W 3.9K | 1 |  |
| R3047,48 |  | ERJ2GE0R00 | M.RESISTOR CH 2W 0 | 2 |  |
| R3049 |  | ERJ3GEYJ561 | M.RESISTOR CH 1/16W 560 | 1 |  |
| R3051 |  | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 1 |  |
| R3052 |  | ERJ2GEJ474 | M.RESISTOR CH 2W 470K | 1 |  |
| R3053 |  | ERJ2GEJ134 | M.RESISTOR CH 2W 130K | 1 |  |
| R3054 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 |  |
| R3055 |  | ERJ2GEJ222 | M.RESISTOR CH 2W 2.2K | 1 |  |
| R3058 |  | ERJ3GEYJ471 | M.RESISTOR CH 1/16W 470 | 1 |  |
| R3059 |  | ERJ3GEYJ222 | M.RESISTOR CH 1/16W 2.2K | 1 |  |
| R3060-62 |  | ERJ3GEYJ680 | M.RESISTOR CH 1/16W 68 | 3 |  |
| R3064 |  | ERJ2GEJ152 | M.RESISTOR CH 2W 1.5K | 1 |  |
| R3068,69 |  | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 2 |  |
| R3070 |  | ERJ3GEYJ561 | M.RESISTOR CH 1/16W 560 | 1 |  |
| R3071 |  | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 1 |  |
| R3072 |  | ERJ3GEYJ561 | M.RESISTOR CH 1/16W 560 | 1 |  |
| R3073 |  | ERJ2GEJ681 | M.RESISTOR CH 2W 680 | 1 |  |
| R3074,75 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 2 |  |
| R3076 |  | ERJ3GEYJ471 | M.RESISTOR CH 1/16W 470 | 1 |  |
| R3077-79 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 3 |  |
| R3080 |  | ERJ2GEJ152 | M.RESISTOR CH 2W 1.5K | 1 |  |
| R3081 |  | ERJ2GE0R00 | M.RESISTOR CH 2W 0 | 1 |  |
| R3089 |  | ERJ2GEJ822 | M.RESISTOR CH 2W 8.2K | 1 |  |
| R3090 |  | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 1 |  |
| R3091 |  | ERJ2GEJ332 | M.RESISTOR CH 2W 3.3K | 1 |  |
| R3097 |  | ERJ2GEJ224 | M.RESISTOR CH 2W 220K | 1 |  |
| R3098 |  | ERJ2GEJ105 | M.RESISTOR CH 2W 1M | 1 |  |
| R3102 |  | ERJ3GEY0R00 | M.RESISTOR CH 1/16W 0 | 1 |  |
| R3103 |  | ERJ2GE0R00 | M.RESISTOR CH 2W 0 | 1 |  |
| R3104 |  | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 1 |  |
| R3111 |  | ERJ2GEJ333 | M.RESISTOR CH 2W 33K | 1 |  |
| R3113 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 |  |
| R3201 |  | ERJ3GEY0R00 | M.RESISTOR CH 1/16W 0 | 1 |  |
| R3207 |  | ERJ2GEJ562 | M.RESISTOR CH 2W 5.6K | 1 |  |
| R3208 |  | ERJ2GEJ223 | M.RESISTOR CH 2W 22K | 1 |  |
| R3209 |  | ERJ2GEJ562 | M.RESISTOR CH 2W 5.6K | 1 |  |
| R3210,11 |  | ERJ2GEJ154 | M.RESISTOR CH 2W 150K | 2 |  |
| R3212 |  | ERJ2GEJ473 | M.RESISTOR CH 2W 47K | 1 |  |
| R3213 |  | ERJ2GEJ334 | M.RESISTOR CH 2W 330K | 1 |  |
| R3214,15 |  | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 2 |  |
| R3216 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 |  |
| R3226-28 |  | ERJ2GE0R00 | M.RESISTOR CH 2W 0 | 3 |  |
| R3229 |  | ERJ6GEY0R00 | M.RESISTOR CH 1/10W 0 | 1 |  |
| R3230 |  | ERJ2GEJ474 | M.RESISTOR CH 2W 470K | 1 |  |
| R3231 |  | ERJ2GEJ133 | M.RESISTOR CH 2W 18K | 1 |  |
| R3232 |  | ERJ2GE0R00 | M.RESISTOR CH 2W 0 | 1 |  |
| R3234 |  | ERJ2GE0R00 | M.RESISTOR CH 2W 0 | 1 |  |
| R3235 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 |  |
| R3240 |  | ERJ3GEY0R00 | M.RESISTOR CH 1/16W 0 | 1 |  |
| R3240 |  | ERJ6GEYJ821 | M.RESISTOR CH 1/10W 820 | 1 |  |
| R3601 |  | ERJ6GEYJ4R7 | M.RESISTOR CH 1/10W 4.7 | 1 |  |
| R3801,02 |  | ERJ2GEJ223 | M.RESISTOR CH 2W 22K | 2 |  |
| R3803 |  | ERJ2GEJ221 | M.RESISTOR CH 2W 220 | 1 |  |
| R3804 |  | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 1 |  |
| R3805 |  | ERJ2GEJ682 | M.RESISTOR CH 2W 6.8K | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

| Ref.No. |  | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| R3806 |  | ERJ2GEJ101 | M.RESISTOR CH 2W 1K | 1 |  |
| R3807 |  | ERJ2GEJ681 | M.RESISTOR CH 2W 680 | 1 |  |
| R3809 |  | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 1 |  |
| R3810,11 |  | ERJ2GEJ101 | M.RESISTOR CH 2W 1K | 2 |  |
| R3812 |  | ERJ2GEJ105 | M.RESISTOR CH 2W 1M | 1 |  |
| R3813 |  | ERJ2GEJ153 | M.RESISTOR CH 2W 15K | 1 |  |
| R3814 |  | ERJ2GEJ104 | M.RESISTOR CH 2W 100K | 1 |  |
| R3815 |  | ERJ2GEJ273 | M.RESISTOR CH 2W 27K | 1 |  |
| R3816 |  | ERJ2GEJ471 | M.RESISTOR CH 2W 470 | 1 |  |
| R3818,19 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 2 |  |
| R3820,21 |  | ERJ3GEYJ472 | M.RESISTOR CH 1/16W 4.7K | 2 |  |
| R3822-25 |  | ERJ2GEJ562 | M.RESISTOR CH 2W 5.6K | 4 |  |
| R4001 |  | ERJ2GEJ684 | M.RESISTOR CH 2W 680K | 1 |  |
| R4002 |  | ERJ2GEJ104 | M.RESISTOR CH 2W 100K | 1 |  |
| R4003 |  | ERJ2GEJ394 | M.RESISTOR CH 2W 390K | 1 |  |
| R4004 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 |  |
| R4007 |  | ERJ2GEJ223 | M.RESISTOR CH 2W 22K | 1 |  |
| R4009 |  | ERJ3GEYJ682 | M.RESISTOR CH 1/16W 6.8K | 1 |  |
| R4012 |  | ERJ3GEYJ100 | M.RESISTOR CH 1/16W 10 | 1 |  |
| R4013 |  | ERJ3GEYJ561 | M.RESISTOR CH 1/16W 560 | 1 |  |
| R4014 |  | ERJ3GEYJ393 | M.RESISTOR CH 1/16W 39K | 1 |  |
| R4015 |  | ERJ3GEYJ100 | M.RESISTOR CH 1/16W 10 | 1 |  |
| R4016,17 |  | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 2 |  |
| R4018 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 |  |
| R4019 |  | ERJ2GEJ153 | M.RESISTOR CH 2W 15K | 1 |  |
| R4020 |  | ERJ3GEYJ471 | M.RESISTOR CH 1/16W 470 | 1 |  |
| R4021 |  | ERJ3GEYJ334 | M.RESISTOR CH 1/16W 330K | 1 |  |
| R4022 |  | ERJ3GEYJ562 | M.RESISTOR CH 1/16W 5.6K | 1 |  |
| R4023 |  | ERJ3GEYJ392 | M.RESISTOR CH 1/16W 3.9K | 1 |  |
| R4027 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 |  |
| R4028 |  | ERJ2GEJ332 | M.RESISTOR CH 2W 3.3K | 1 |  |
| R4029 |  | ERJ2GEJ122 | M.RESISTOR CH 2W 1.2K | 1 |  |
| R4030 |  | ERJ2GEJ272 | M.RESISTOR CH 2W 2.7K | 1 |  |
| R4031 |  | ERJ3GEYJ390 | M.RESISTOR CH 1/16W 39 | 1 |  |
| R4034 |  | ERJ3GEYJ101 | M.RESISTOR CH 1/16W 100 | 1 |  |
| R4035 |  | ERJ3GEYJ472 | M.RESISTOR CH 1/16W 4.7K | 1 |  |
| R4036 |  | ERJ3GEYJ100 | M.RESISTOR CH 1/16W 10 | 1 |  |
| R4037,38 |  | ERJ3GEYJ123 | M.RESISTOR CH 1/16W 12K | 2 |  |
| R4039 |  | ERJ3GEYJ152 | M.RESISTOR CH 1/16W 1.5K | 1 |  |
| R4041,42 |  | ERJ3GEYJ123 | M.RESISTOR CH 1/16W 12K | 2 |  |
| R4043 |  | ERJ2GEJ183 | M.RESISTOR CH 2W 18K | 1 |  |
| R4044 |  | ERJ2GEJ822 | M.RESISTOR CH 2W 8.2K | 1 |  |
| R4045 |  | ERJ2GEJ183 | M.RESISTOR CH 2W 18K | 1 |  |
| R4046 |  | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 1 |  |
| R4047 |  | ERJ2GEJ392 | M.RESISTOR CH 2W 3.9K | 1 |  |
| R4048 |  | ERJ2GEJ183 | M.RESISTOR CH 2W 18K | 1 |  |
| R4049,50 |  | ERJ3GEYJ101 | M.RESISTOR CH 1/16W 100 | 2 |  |
| R4051 |  | ERJ3GEYJ181 | M.RESISTOR CH 1/16W 180 | 1 |  |
| R4052,53 |  | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 2 |  |
| R4055 |  | ERJ2GEJ683 | M.RESISTOR CH 2W 68K | 1 |  |
| R4056 |  | ERJ2GEJ473 | M.RESISTOR CH 2W 47K | 1 |  |
| R4057 |  | ERJ3GEYJ102 | M.RESISTOR CH 1/16W 1K | 1 |  |
| R4058 |  | ERJ3GEYJ821 | M.RESISTOR CH 1/16W 820 | 1 |  |
| R4059 |  | ERJ3GEYJ222 | M.RESISTOR CH 1/16W 2.2K | 1 |  |
| R4060 |  | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 1 |  |
| R4061 |  | ERJ2GEJ332 | M.RESISTOR CH 2W 3.3K | 1 |  |
| R4062 |  | ERJ2GEJ154 | M.RESISTOR CH 2W 150K | 1 |  |
| R4501,02 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 2 |  |
| R4503 |  | ERJ3GEYJ102 | M.RESISTOR CH 1/16W 1K | 1 |  |
| R4504 |  | ERJ2GEJ681 | M.RESISTOR CH 2W 680 | 1 |  |
| R4506 |  | ERJ2GEJ681 | M.RESISTOR CH 2W 680 | 1 |  |
| R4511 |  | ERJ2GEJ333 | M.RESISTOR CH 2W 33K | 1 |  |
| R4513 |  | ERJ2GEJ333 | M.RESISTOR CH 2W 33K | 1 |  |
| R4515 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 |  |
| R4516 |  | ERJ2GEJ473 | M.RESISTOR CH 2W 47K | 1 |  |
| R4517,18 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 2 |  |
| R5001 |  | ERJ3GEYJ332 | M.RESISTOR CH 1/16W 3.3K | 1 |  |
| R5002 |  | ERJ3GEYJ222 | M.RESISTOR CH 1/16W 2.2K | 1 |  |
| R5003 |  | ERJ3GEYG822 | M.RESISTOR CH 1/16W 8.2K | 1 |  |
| R5004-07 |  | ERJ3GEYJ471 | M.RESISTOR CH 1/16W 470 | 4 |  |
| R5008-11 |  | ERJ3GEYJ821 | M.RESISTOR CH 1/16W 820 | 4 |  |
| R5012,13 |  | ERJ3GEYJ472 | M.RESISTOR CH 1/16W 4.7K | 2 |  |
| R5014 |  | ERJ3GEYJ821 | M.RESISTOR CH 1/16W 820 | 1 |  |
| R5015 |  | ERJ3GEYJ472 | M.RESISTOR CH 1/16W 4.7K | 1 |  |
| R5016-19 |  | ERJ3GEYJ102 | M.RESISTOR CH 1/16W 1K | 4 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

| Ref.No. |  | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| R5020-23 |  | ERJ3GEYJ391 | M.RESISTOR CH 1/16W 390 | 4 |  |
| R5024 |  | ERJ3GEYJ4R7 | M.RESISTOR CH 1/16W 4.7 | 1 |  |
| R5025 |  | ERJ3GEYJ391 | M.RESISTOR CH 1/16W 390 | 1 |  |
| R5026 |  | ERJ3GEYJ181 | M.RESISTOR CH 1/16W 180 | 1 |  |
| R5027 |  | ERJ3GEYG822 | M.RESISTOR CH 1/16W 8.2K | 1 |  |
| R5028 |  | ERJ3GEYJ183 | M.RESISTOR CH 1/16W 18K | 1 |  |
| R5029,30 |  | ERJ3GEYJ100 | M.RESISTOR CH 1/16W 10 | 2 |  |
| R5032 |  | ERJ3GEYJ184 | M.RESISTOR CH 1/16W 180K | 1 |  |
| R5033,34 |  | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 2 |  |
| R5035 |  | ERJ3GEYJ391 | M.RESISTOR CH 1/16W 390 | 1 |  |
| R5036 |  | ERJ2GEJ332 | M.RESISTOR CH 2W 3.3K | 1 |  |
| R5050-53 |  | ERJ2GEJ394 | M.RESISTOR CH 2W 390K | 4 |  |
| R5054-56 |  | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 3 |  |
| R6001-09 |  | ERJ2GEJ473 | M.RESISTOR CH 2W 47K | 9 |  |
| R6010 |  | ERJ8GEYJ2R2 | M.RESISTOR CH 1/8W 2.2 | 1 |  |
| R6011 |  | ERJ2GEJ473 | M.RESISTOR CH 2W 47K | 1 |  |
| R6012-14 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 3 |  |
| R6015 |  | ERJ2GEJ104 | M.RESISTOR CH 2W 100K | 1 |  |
| R6016-20 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 5 |  |
| R6021 |  | ERJ2GEJ473 | M.RESISTOR CH 2W 47K | 1 |  |
| R6022-28 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 7 |  |
| R6029 |  | ERJ2GEJ563 | M.RESISTOR CH 2W 56K | 1 |  |
| R6030 |  | ERJ2GEJ333 | M.RESISTOR CH 2W 33K | 1 |  |
| R6031 |  | ERJ2GEJ473 | M.RESISTOR CH 2W 47K | 1 |  |
| R6032 |  | ERJ2GEJ682 | M.RESISTOR CH 2W 6.8K | 1 |  |
| R6033,34 |  | ERJ2GEJ473 | M.RESISTOR CH 2W 47K | 2 |  |
| R6035 |  | ERJ2GEJ273 | M.RESISTOR CH 2W 27K | 1 |  |
| R6036 |  | ERJ2GEJ223 | M.RESISTOR CH 2W 22K | 1 |  |
| R6037 |  | ERJ2GEJ224 | M.RESISTOR CH 2W 220K | 1 |  |
| R6038 |  | ERJ2GEJ223 | M.RESISTOR CH 2W 22K | 1 |  |
| R6039 |  | ERJ8GEYJ120 | M.RESISTOR CH 1/8W 12 | 1 |  |
| R6040 |  | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 1 |  |
| R6041 |  | ERJ8GEYJ221 | M.RESISTOR CH 1/8W 220 | 1 |  |
| R6042 |  | ERJ6GEYJ331 | M.RESISTOR CH 1/10W 330 | 1 |  |
| R6043 |  | ERJ2GEJ392 | M.RESISTOR CH 2W 3.9K | 1 |  |
| R6044 |  | ERJ2GEJ152 | M.RESISTOR CH 2W 1.5K | 1 |  |
| R6045 |  | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 1 |  |
| R6046 |  | ERJ2GEJ473 | M.RESISTOR CH 2W 47K | 1 |  |
| R6047 |  | ERJ2GEJ394 | M.RESISTOR CH 2W 390K | 1 |  |
| R6048 |  | ERJ2GEJ154 | M.RESISTOR CH 2W 150K | 1 |  |
| R6050 |  | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 1 |  |
| R6051 |  | ERJ2GEJ473 | M.RESISTOR CH 2W 47K | 1 |  |
| R6052 |  | ERJ2GEJ223 | M.RESISTOR CH 2W 22K | 1 |  |
| R6053 |  | ERJ2GEJ393 | M.RESISTOR CH 2W 39K | 1 |  |
| R6054 |  | ERJ2GEJ334 | M.RESISTOR CH 2W 330K | 1 |  |
| R6055 |  | ERJ8GEYJ821 | M.RESISTOR CH 1/8W 820 | 1 |  |
| R6057 |  | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 1 |  |
| R6058,59 |  | ERJ2GEJ473 | M.RESISTOR CH 2W 47K | 2 |  |
| R6060-62 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 3 |  |
| R6063 |  | ERJ2GEJ392 | M.RESISTOR CH 2W 3.9K | 1 |  |
| R6064,65 |  | ERJ2GEJ473 | M.RESISTOR CH 2W 47K | 2 |  |
| R6069 |  | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 1 |  |
| R6070 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 |  |
| R6072-74 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 3 |  |
| R6075 |  | ERJ2GEJ562 | M.RESISTOR CH 2W 5.6K | 1 |  |
| R6076 |  | ERJ2GEJ224 | M.RESISTOR CH 2W 220K | 1 |  |
| R6077 |  | ERJ2GEJ223 | M.RESISTOR CH 2W 22K | 1 |  |
| R6079 |  | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 1 |  |
| R6080 |  | ERJ2GEJ103 | 6M.RESISTOR CH 2W 10K | 1 |  |
| R6081 |  | ERJ2GEJ105 | M.RESISTOR CH 2W 1M | 1 |  |
| R6082 |  | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 1 |  |
| R6083-85 |  | ERJ2GEJ473 | M.RESISTOR CH 2W 47K | 3 |  |
| R6090 |  | ERJ2GEJ393 | M.RESISTOR CH 2W 39K | 1 |  |
| R6091 |  | ERJ2GE0R00 | M.RESISTOR CH 2W 0 | 1 |  |
| R6092 |  | ERJ2GEJ393 | M.RESISTOR CH 2W 39K | 1 |  |
| R6101 |  | ERJ2GEJ473 | M.RESISTOR CH 2W 47K | 1 |  |
| R6102-05 |  | ERJ3GEYJ102 | M.RESISTOR CH 1/16W 1K | 4 |  |
| R6106-08 |  | EXBV8V104J | RESISTOR-RESISTOR | 3 |  |
| R6109 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 |  |
| R6110 |  | ERJ2GEJ153 | M.RESISTOR CH 2W 15K | 1 |  |
| R6111 |  | ERJ2GEJ104 | M.RESISTOR CH 2W 100K | 1 |  |
| R6116-19 |  | ERJ3GEYJ101 | M.RESISTOR CH 1/16W 100 | 4 |  |
| R6120 |  | ERJ2GEJ105 | M.RESISTOR CH 2W 1M | 1 |  |
| R6124 |  | ERJ3GEYJ101 | M.RESISTOR CH 1/16W 100 | 1 |  |
| R6127 |  | ERJ2GEJ473 | M.RESISTOR CH 2W 47K | 1 |  |

| Ref.No. |  | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| R6129 |  | ERJ2GEJ333 | M.RESISTOR CH 2W 33K | 1 |  |
| R6130 |  | ERJ2GEJ104 | M.RESISTOR CH 2W 100K | 1 |  |
| R6131 |  | ERJ2GEJ105 | M.RESISTOR CH 2W 1M | 1 |  |
| R6137 |  | ERJ2GE0R00 | M.RESISTOR CH 2W 0 | 1 |  |
| R6138 |  | ERJ2GEJ683 | M.RESISTOR CH 2W 68K | 1 |  |
| R6139 |  | ERJ2GEJ473 | M.RESISTOR CH 2W 47K | 1 |  |
| R6142 |  | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 1 |  |
| R6146,47 |  | ERJ2GEJ104 | M.RESISTOR CH 2W 100K | 2 |  |
| R6150,51 |  | ERJ2GEJ562 | M.RESISTOR CH 2W 5.6K | 2 |  |
| R6152 |  | ERJ2GEJ222 | M.RESISTOR CH 2W 2.2K | 1 |  |
| R6153 |  | ERJ2GEJ562 | M.RESISTOR CH 2W 5.6K | 1 |  |
| R6154 |  | EXBV8V102J | RESISTOR-RESISTOR | 1 |  |
| R6155 |  | ERJ2GE0R00 | M.RESISTOR CH 2W 0 | 1 |  |
| R6156 |  | ERJ2GEJ153 | M.RESISTOR CH 2W 15K | 1 |  |
| R6201,02 |  | ERJ2GEJ104 | M.RESISTOR CH 2W 100K | 2 |  |
| R6203 |  | ERJ2GEJ682 | M.RESISTOR CH 2W 6.8K | 1 |  |
| R6204 |  | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 1 |  |
| R6205 |  | ERJ2GEJ222 | M.RESISTOR CH 2W 2.2K | 1 |  |
| R6206 |  | ERJ3GEYJ181 | M.RESISTOR CH 1/16W 180 | 1 |  |
| R6207 |  | ERJ2GEJ222 | M.RESISTOR CH 2W 2.2K | 1 |  |
| R6208 |  | ERJ2GEJ223 | M.RESISTOR CH 2W 22K | 1 |  |
| R6209 |  | ERJ2GEJ473 | M.RESISTOR CH 2W 47K | 1 |  |
| R6212,13 |  | ERJ2GEJ104 | M.RESISTOR CH 2W 100K | 2 |  |
| R6214 |  | ERJ2GE0R00 | M.RESISTOR CH 2W 0 | 1 |  |
| R6216 |  | ERJ2GEJ104 | M.RESISTOR CH 2W 100K | 1 |  |
| R6217 |  | ERJ8GEYJ2R2 | M.RESISTOR CH 1/8W 2.2 | 1 |  |
| R6219 |  | ERJ2GEJ224 | M.RESISTOR CH 2W 220K | 1 |  |
| R6220 |  | ERJ2GEJ222 | M.RESISTOR CH 2W 2.2K | 1 |  |
| R6221 |  | ERJ2GEJ223 | M.RESISTOR CH 2W 22K | 1 |  |
| R6231 |  | ERJ2GEJ393 | M.RESISTOR CH 2W 39K | 1 |  |
| R6251-53 |  | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 3 |  |
| R8003 |  | ERJ2GEJ272 | M.RESISTOR CH 2W 2.7K | 1 |  |
| R8014 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 |  |
| R8016 |  | ERJ2GEJ182 | M.RESISTOR CH 2W 1.8K | 1 |  |
| R8017 |  | ERJ2GEJ681 | M.RESISTOR CH 2W 680 | 1 |  |
| R8018 |  | ERJ2GE0R00 | M.RESISTOR CH 2W 0 | 1 |  |
| R8030 |  | ERJ2GE0R00 | M.RESISTOR CH 2W 0 | 1 |  |
| R8032 |  | ERJ2GE0R00 | M.RESISTOR CH 2W 0 | 1 |  |
| R8044 |  | ERJ2GEJ152 | M.RESISTOR CH 2W 1.5K | 1 |  |
| R8045 |  | ERJ2GEJ223 | M.RESISTOR CH 2W 22K | 1 |  |
| R8054 |  | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 1 |  |
| R8057,58 |  | ERJ2GEJ474 | M.RESISTOR CH 2W 470K | 2 |  |
| R8062 |  | ERJ2GEJ152 | M.RESISTOR CH 2W 1.5K | 1 |  |
| R8064 |  | ERJ2GE0R00 | M.RESISTOR CH 2W 0 | 1 |  |
| R8065 |  | ERJ2GEJ103 | M.RESISTOR CH 2W 10K | 1 |  |
| R8066 |  | ERJ2GEJ392 | M.RESISTOR CH 2W 3.9K | 1 |  |
| R8067 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 1 |  |
| R8070 |  | ERJ2GEJ681 | M.RESISTOR CH 2W 680 | 1 |  |
| R8071,72 |  | ERJ2GEJ102 | M.RESISTOR CH 2W 1K | 2 |  |
| R8075 |  | ERJ3GEYJ151 | M.RESISTOR CH 1/16W 150 | 1 |  |
| R8103 |  | ERJ2GE0R00 | M.RESISTOR CH 2W 0 | 1 |  |
| R8110 |  | ERJ2GE0R00 | M.RESISTOR CH 2W 0 | 1 |  |
| R8111 |  | ERJ2GEJ472 | M.RESISTOR CH 2W 4.7K | 1 |  |
| R8114 |  | ERJ3GEYJ102 | M.RESISTOR CH 1/16W 1K | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | TRANSFORMERS |  |  |
| T4001 |  | EIQ6QB006 | TRANSFORMER | 1 |  |
|  |  |  |  |  |  |
|  |  |  | VARIABLE RESISTORS |  |  |
| VR3001 |  | EVM7JSX10B13 | V.RESISTOR | 1 |  |
| VR3004 |  | EVM7JSX10B53 | V.RESISTOR | 1 |  |
| VR3005 |  | EVM7JSX10B13 | V.RESISTOR | 1 |  |
| VR3006 |  | EVM7JSX10B14 | V.RESISTOR | 1 |  |
| VR3007 |  | EVM7JSX10B54 | V.RESISTOR | 1 |  |
| VR3008 |  | EVM7JSX10B52 | V.RESISTOR | 1 |  |
| VR3801 |  | EVM7JSX10B13 | V.RESISTOR | 1 |  |
| VR4001 |  | EVM7JSX10B24 | V.RESISTOR | 1 |  |
| VR4002 |  | EVM7JSX10B54 | V.RESISTOR | 1 |  |
| VR4501,02 |  | EVM7JSX10B23 | V.RESISTOR | 2 |  |
| VR6001 |  | EVM7JSX10B14 | V.RESISTOR | 1 |  |
| VR6201 |  | EVM7JSX10B15 | V.RESISTOR | 1 |  |
| VR8001 |  | EVM7JSX10B23 | V.RESISTOR | 1 |  |

| Ref.No. | | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| | | | CRYSTAL OSCILLATORS | | |
| X3801 | | VSX0444 | CRYSTAL OSCILLATOR | 1 | |
| X6001 | | VSX0461 | CRYSTAL OSCILLATOR | 1 | |
| X6002 | | VSX0439 | CRYSTAL OSCILLATOR | 1 | |
| X6101 | | VSX0472 | CRYSTAL OSCILLATOR | 1 | |
| X6102 | | VSX0439 | CRYSTAL OSCILLATOR | 1 | |
| X8001 | | VSX0419 | CRYSTAL OSCILLATOR | 1 | |
| | | | MISCELLANEOUS | | |
| | | VSC3473 | H.A. SHIELD COVER (FRONT) | 1 | |
| | | VSC3474 | H.A. SHIELD COVER (REAR) | 1 | |
| | | VSC3608 | SHIELD PLATE | 1 | |
| | ■ | VEP01508A | POWER C.B.A. | | |
| | | | CAPACITORS | | |
| C1001 | | ECUM1C335ZFM | C.CAPACITOR CH 16V 3.3U | 1 | |
| C1002 | | ECEV1CA470F | E.CAPACITOR 16V 47U | 1 | |
| C1003 | | ECGC0KA8R2 | CAPACITOR | 1 | |
| C1004 | | ECUX1H331KBV | C.CAPACITOR CH 50V 330P | 1 | |
| C1005 | | ECST1CY335Z | T.CAPACITOR 16V 3.3U | 1 | |
| C1006 | | ECUM1C105ZFM | C.CAPACITOR CH 16V 1U | 1 | |
| C1007 | | ECEV0JA220 | E.CAPACITOR 6.3V 22U | 1 | |
| C1008 | | ECGC0KA8R2 | CAPACITOR | 1 | |
| C1009 | | ECUX1H331KBV | C.CAPACITOR CH 50V 330P | 1 | |
| C1010 | | ECST1CY335Z | T.CAPACITOR 16V 3.3U | 1 | |
| C1011 | | ECUM1C225ZFM | C.CAPACITOR CH 16V 2.2U | 1 | |
| C1012 | | ECUX1H102KBV | C.CAPACITOR CH 50V 1000P | 1 | |
| C1013 | | ECGC1BA4R7 | CAPACITOR | 1 | |
| C1014 | | ECUX1H561KBV | C.CAPACITOR CH 50V 560P | 1 | |
| C1015 | | ECEV1AA470 | E.CAPACITOR 10V 47U | 1 | |
| C1017 | | ECUM1C105ZFM | C.CAPACITOR CH 16V 1U | 1 | |
| C1019 | | ECUM1C474ZFM | C.CAPACITOR CH 16V 0.47U | 1 | |
| C1020 | | ECUM1C105ZFM | C.CAPACITOR CH 16V 1U | 1 | |
| C1022 | | ECUM1H104ZFM | C.CAPACITOR CH 50V 0.1U | 1 | |
| C1024 | | ECUM1C474ZFM | C.CAPACITOR CH 16V 0.47U | 1 | |
| C1025 | | ECUM1C104KBN | C.CAPACITOR CH 16V 0.1U | 1 | |
| C1026 | | ECEV1HA010 | E.CAPACITOR 50V 1U | 1 | |
| C1027 | | ECUX1H101JCV | C.CAPACITOR CH 50V 100P | 1 | |
| C1028 | | ECEV1HAR47 | E.CAPACITOR CH 50V | 1 | |
| C1029 | | ECUX1H471KBV | C.CAPACITOR CH 50V 470P | 1 | |
| C1030 | | ECUX1H822KBV | C.CAPACITOR CH 50V 8200P | 1 | |
| C1031 | | ECUX1H471KBV | C.CAPACITOR CH 50V 470P | 1 | |
| C1032 | | ECUX1H822KBV | C.CAPACITOR CH 50V 8200P | 1 | |
| C1033-35 | | ECUX1H102KBV | C.CAPACITOR CH 50V 1000P | 3 | |
| C1036 | | ECUX1H471KBV | C.CAPACITOR CH 50V 470P | 1 | |
| C1037 | | ECUX1H822KBV | C.CAPACITOR CH 50V 8200P | 1 | |
| C1041 | | ECUM1C105ZFM | C.CAPACITOR CH 16V 1U | 1 | |
| C1042 | | ECST1CY335Z | T.CAPACITOR 16V 3.3U | 1 | |
| C1043 | | ECUM1C105ZFM | C.CAPACITOR CH 16V 1U | 1 | |
| C1045 | | ECEV1CA470F | E.CAPACITOR 16V 47U | 1 | |
| C1061 | | ECUX1H472KBV | C.CAPACITOR CH 50V 4700P | 1 | |
| C1062 | | ECEV1CA470F | E.CAPACITOR 16V 47U | 1 | |
| C1063 | | ECUX1H472KBV | C.CAPACITOR CH 50V 4700P | 1 | |
| C1064 | | ECEV1CA470F | E.CAPACITOR 16V 47U | 1 | |
| C1065,66 | | ECUM1C105ZFM | C.CAPACITOR CH 16V 1U | 2 | |
| C1098 | | ECUX1H103KBV | C.CAPACITOR CH 50V 0.01U | 1 | |
| C1104,05 | | ECUM1C105ZFM | C.CAPACITOR CH 16V 1U | 2 | |
| | | | DIODES | | |
| D1001 | | MA738 | DIODE | 1 | |
| D1002 | | MA736 | DIODE | 1 | |
| D1003 | | MA132WA | DIODE | 1 | |
| D1004 | | MA736 | DIODE | 1 | |

| Ref.No. | | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| D1005 | | MA720 | DIODE | 1 | |
| D1006,07 | | MA132K | DIODE | 2 | |
| D1008 | | MA728 | DIODE | 1 | |
| D1009 | | RD10M | DIODE | 1 | |
| D1010,11 | | RD13M | DIODE | 2 | |
| D1012 | | MA133 | DIODE | 1 | |
| D1061,62 | | MA720 | DIODE | 2 | |
| D1063,64 | | MA728 | DIODE | 2 | |
| D1106 | | MA132K | DIODE | 1 | |
| D6501 | | MA132WA | DIODE | 1 | |
| D6502 | | CL150UR | DIODE | 1 | |
| D6503 | | MA728 | DIODE | 1 | |
| | | | INTEGRATED CIRCUITS | | |
| IC1001 | | BA9703K | IC | 1 | |
| IC1101 | | RH5RA50AAT1 | IC | 1 | |
| | | | CONNECTORS | | |
| J1001 | | VEK5631 | | 1 | |
| J6501 | | VEK5717 | | 1 | |
| | | | COILS | | |
| L1001 | | ELL04T502R | COIL | 1 | |
| L1002 | | ELL04T004R | TRANSFORMER | 1 | |
| L1003 | | ELL04T502R | COIL | 1 | |
| L1004 | | ELJPA100KB | COIL 10UH | 1 | |
| L1006 | | ELJPA470KB | COIL 47UH | 1 | |
| L1007 | | ELL04T020R | COIL | 1 | |
| L1008 | | ELL04T502R | COIL | 1 | |
| L1009 | | ELJPA100KB | COIL 10UH | 1 | |
| L1010,11 | | ELJPA101KB | COIL 100UH | 2 | |
| L1012 | | ELJPA100KB | COIL 10UH | 1 | |
| L1061,62 | | ELL04T005R | TRANSFORMER | 2 | |
| L1101 | | ELJPA101KB | COIL 100UH | 1 | |
| L1102,03 | | VLP0134 | COIL | 2 | <!> |
| | | | CONNECTORS | | |
| P1001 | | VJS2958D018 | CONNECTOR (FEMALE) | 1 | |
| P6501 | | VJS2961A034 | CONNECTOR (FEMALE) | 1 | |
| | | | TRANSISTORS | | |
| Q1001-03 | | 2SB1073 | TRANSISTOR | 3 | |
| Q1004 | | 2SD2210 | TRANSISTOR | 1 | |
| Q1005 | | 2SB1073 | TRANSISTOR | 1 | |
| Q1006 | | 2SB970X | TRANSISTOR | 1 | |
| Q1061,62 | | 2SB1073 | TRANSISTOR | 2 | |
| Q1101 | | 2SB970X | TRANSISTOR | 1 | |
| Q1102 | | 2SB1462 | TRANSISTOR | 1 | |
| Q6501 | | 2SD2216-R | TRANSISTOR | 1 | |
| | | | COMBINATION PARTS | | |
| QR1002 | | UN9214 | TRANSISTOR-RESISTOR | 1 | |
| QR1004 | | UN9214 | TRANSISTOR-RESISTOR | 1 | |
| QR1005 | | UN9114 | TRANSISTOR-RESISTOR | 1 | |
| QR1006 | | XP1501 | TRANSISTOR-TRANSISTOR | 1 | |
| QR1061 | | UN9115 | TRANSISTOR-RESISTOR | 1 | |
| QR1101 | | UN9213 | TRANSISTOR-RESISTOR | 1 | |
| QR6502 | | UN9212 | TRANSISTOR-RESISTOR | 1 | |
| | | | RESISTORS | | |
| R1001 | | ERJ6GEYG682 | M.REISITOR CH 1/10W 6.8K | 1 | |
| R1002 | | ERJ6GEYG222 | M.RESISTOR CH 1/10W 2.2K | 1 | |
| R1003 | | ERJ3GEYJ102 | M.RESISTOR CH 1/16W 1K | 1 | |
| R1004 | | ERJ3GEYJ391 | M.RESISTOR CH 1/16W 390 | 1 | |
| R1005 | | ERJ6GEYG562 | M.RESISTOR CH 1/10W 5.6K | 1 | |
| R1006 | | ERJ6GEYG272 | M.RESISTOR CH 1/10W 2.7K | 1 | |
| R1007 | | ERJ8GEYJ330 | M.RESISTOR CH 1/8W 33 | 1 | |
| R1008 | | ERJ6GEYG103 | M.RESISTOR CH 1/10W 10K | 1 | |

| Ref.No. |  | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| R1009 |  | ERJ6GEYG162 | M.RESISTOR CH 1/10W 1.6K | 1 |  |
| R1012 |  | ERJ3GEYG183 | M.RESISTOR CH 1/16W 18K | 1 |  |
| R1013 |  | ERJ3GEYG393 | M.RESISTOR CH 1/16W 39K | 1 |  |
| R1014,15 |  | ERJ3GEYG182 | M.RESISTOR CH 1/16W 1.8K | 2 |  |
| R1016 |  | VRE0034E153 | M.RESISTOR CH 1/10W 15K | 1 |  |
| R1017 |  | ERJ3GEYJ102 | M.RESISTOR CH 1/16W 1K | 1 |  |
| R1018 |  | ERJ3GEYJ151 | M.RESISTOR CH 1/16W 150 | 1 |  |
| R1019 |  | ERJ3GEYJ102 | M.RESISTOR CH 1/16W 1K | 1 |  |
| R1020 |  | ERJ3GEYJ151 | M.RESISTOR CH 1/16W 150 | 1 |  |
| R1021 |  | ERJ3GEYJ330 | M.RESISTOR CH 1/16W 33 | 1 |  |
| R1022 |  | ERJ3GEYJ560 | M.RESISTOR CH 1/16W 56 | 1 |  |
| R1023 |  | ERJ3GEYJ272 | M.RESISTOR CH 1/16W 2.7K | 1 |  |
| R1024 |  | ERJ3GEYJ470 | M.RESISTOR CH 1/16W 47 | 1 |  |
| R1025,26 |  | ERJ3GEYJ102 | M.RESISTOR CH 1/16W 1K | 2 |  |
| R1027 |  | ERJ3GEYJ221 | M.RESISTOR CH 1/16W 220 | 1 |  |
| R1029 |  | ERJ3GEYJ103 | M.RESISTOR CH 1/16W 10K | 1 |  |
| R1030 |  | ERJ3GEYJ183 | M.RESISTOR CH 1/16W 18K | 1 |  |
| R1031 |  | ERJ3GEYJ333 | M.RESISTOR CH 1/16W 33K | 1 |  |
| R1032 |  | ERJ3GEYJ103 | M.RESISTOR CH 1/16W 10K | 1 |  |
| R1033 |  | ERJ3GEYJ102 | M.RESISTOR CH 1/16W 1K | 1 |  |
| R1034 |  | ERJ3GEYJ330 | M.RESISTOR CH 1/16W 33 | 1 |  |
| R1035 |  | ERJ3GEYJ470 | M.RESISTOR CH 1/16W 47 | 1 |  |
| R1061,62 |  | ERJ6GEYJ391 | M.RESISTOR CH 1/10W 390 | 2 |  |
| R1063 |  | ERJ3GEYJ103 | M.RESISTOR CH 1/16W 10K | 1 |  |
| R1064,65 |  | ERJ3GEYJ122 | M.RESISTOR CH 1/16W 1.2K | 2 |  |
| R1101 |  | ERJ3GEYJ103 | M.RESISTOR CH 1/16W 10K | 1 |  |
| R1102 |  | ERJ3GEYJ392 | M.RESISTOR CH 1/16W 3.9K | 1 |  |
| R1103 |  | ERJ3GEYJ222 | M.RESISTOR CH 1/16W 2.2K | 1 |  |
| R1104 |  | ERJ3GEYJ103 | M.RESISTOR CH 1/16W 10K | 1 |  |
| R1115 |  | VSF0092 | RESISTOR | 1 | <!> |
| R6501 |  | ERJ3GEYJ104 | M.RESISTOR CH 1/16W 100K | 1 |  |
| R6502 |  | ERJ3GEYJ563 | M.RESISTOR CH 1/16W 56K | 1 |  |
| R6504 |  | ERJ3GEYJ102 | M.RESISTOR CH 1/16W 1K | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | SWITCHES |  |  |
| S6501 |  | VSS0348 | SWITCH | 1 |  |
| S6502 |  | EVQPJT05M | SWITCH | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | TRANSFORMERS |  |  |
| T1001 |  | ELL04T025R | TRANSFORMER | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | VARIABLE RESISTORS |  |  |
| VR1001 |  | EVM7JSX30B52 | V.RESISTOR 5.2K | 1 |  |
| VR1002 |  | EVM7JSX30B13 | V.RESISTOR 1K | 1 |  |
| VR1003 |  | EVM7JSX30BE2 | V.RESISTOR | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | MISCELLANEOUS |  |  |
|  |  | VGQ2598 | LED COVER | 1 |  |
|  |  | VSC3491 | SHIELD COVER (A) | 1 |  |
|  |  | VSC3492 | SHIELD COVER (B) | 1 |  |
|  |  | VMZ1903 | PROCESS SHIELD BARRIER | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | ■ | VEP06781A | SUB OPERATION C.B.A. |  | (NLA) |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | CONNECTORS |  |  |
| B6701 |  | VJP2962A018 | CONNECTOR (MALE) | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | DIODES |  |  |
| D6701-03 |  | MA132WA | DIODE | 3 |  |
| D6704 |  | MA132K | DIODE | 1 |  |
| D6705 |  | MA132WA | DIODE | 1 |  |
| D6706 |  | MA132K | DIODE | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

| Ref.No. |  | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| D6707 |  | MA132WA | DIODE | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | CONNECTORS |  |  |
| FP6701 |  | VJS2848B016 | CONNECTOR (FEMALE) | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| P6701 |  | VJP3125D006 | CONNECTOR (MALE) | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | ■ | VEP02379A | DRIVE C.B.A. |  | (NLA) |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | CAPACITORS |  |  |
| C2001 |  | ECUX1H152KBV | C.CAPACITOR CH 50V 1500P | 1 |  |
| C2002 |  | ECUM1C105KBP | C.CAPACITOR CH 16V 1U | 1 |  |
| C2003 |  | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 |  |
| C2006 |  | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 |  |
| C2007 |  | ECUM1C105KBM | C.CAPACITOR CH 16V 1U | 1 |  |
| C2008 |  | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 |  |
| C2009,10 |  | ECUM1C104KBN | C.CAPACITOR CH 16V 0.1U | 2 |  |
| C2011,12 |  | ECUX1H561KBV | C.CAPACITOR CH 50V 560P | 2 |  |
| C2013 |  | ECUM1E473KBN | C.CAPACITOR CH 25V 0.047U | 1 |  |
| C2014 |  | ECST1AY475Z | T.CAPACITOR CH 10V 4.7U | 1 |  |
| C2015-18 |  | ECUM1C104KBN | C.CAPACITOR CH 16V 0.1U | 4 |  |
| C2019 |  | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 |  |
| C2020,21 |  | ECUM1E473KBN | C.CAPACITOR CH 25V 0.047U | 2 |  |
| C2022-24 |  | ECUX1H103ZFV | C.CAPACITOR CH 50V 0.01U | 3 |  |
| C2025-27 |  | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 3 |  |
| C2028 |  | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 |  |
| C2029 |  | ECUX1H470JCV | C.CAPACITOR CH 50V 47P | 1 |  |
| C2030 |  | ECUM1C104KBN | C.CAPACITOR CH 16V 0.1U | 1 |  |
| C2032 |  | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 |  |
| C2033 |  | ECUM1E104ZFN | C.CAPACITOR CH 25V 0.1U | 1 |  |
| C2034 |  | ECUM1C104KBN | C.CAPACITOR CH 16V 0.1U | 1 |  |
| C2035 |  | ECST0JY106Z | T.CAPACITOR 6.3V 10U | 1 |  |
| C2036 |  | ECUM1C105ZFN | C.CAPACITOR 16V 1U | 1 |  |
| C2037 |  | ECUX1C104ZFV | C.CAPACITOR CH 16V 0.1U | 1 |  |
| C2038 |  | ECUX1H103ZFV | C.CAPACITOR CH 50V 0.01U | 1 |  |
| C2039 |  | ECUX1H103KBV | C.CAPACITOR CH 50V 0.01U | 1 |  |
| C2042 |  | ECUX1H332KBV | C.CAPACITOR CH 50V 3300P | 1 |  |
| C2044 |  | ECUX1E223KBV | C.CAPACITOR CH 25V 0.022U | 1 |  |
| C2047 |  | ECUX1H103ZFV | C.CAPACITOR CH 50V 0.01U | 1 |  |
| C2049,50 |  | ECUX1H102KBV | C.CAPACITOR CH 50V 1000P | 2 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | DIODES |  |  |
| D2001 |  | MA143 | DIODE | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | INTEGRATED CIRCUITS |  |  |
| IC2001 |  | AN3893FHP | IC | 1 |  |
| IC2002 |  | UN224 |  | 1 |  |
| IC2003 |  | AN3890FBS | IC | 1 |  |
| IC2004 |  | UN224 |  | 1 |  |
| IC2005 |  | RC4558M | IC | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | CONNECTORS |  |  |
| P2001 |  | VJP2962C022 | CONNECTOR (MALE) | 1 |  |
| P2002 |  | VJS2848D007 | CONNECTOR (FEMALE) | 1 |  |
| P2003 |  | VJS2958D018 | CONNECTOR (FEMALE) | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | COMBINATION PARTS |  |  |
| QR2001 |  | ON2170-LM |  | 1 |  |
| QR2002 |  | UN5210 | TRANSISTOR | 1 |  |
| QR2003 |  | UN5111 | TRANSISTOR-RESISTOR | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

| Ref.No. |  | Part No. | Part Name & Description | Pcs | Remarks |
|---|---|---|---|---|---|
| QR2004 |  | UN5216 |  | 1 |  |
| QR2005 |  | UN5215 | TRANSISTOR-RESISTOR | 1 |  |
| QR2006 |  | UN5115 | TRANSISTOR-RESISTOR | 1 |  |
| QR2007 |  | UN5215 | TRANSISTOR-RESISTOR | 1 |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | RESISTORS |  |  |
| R2001 |  | ERJ3GEYJ154 | M.RESISTOR CH 1/16W 150K | 1 |  |
| R2002 |  | ERJ3GEYJ222 | M.RESISTOR CH 1/16W 2.2K | 1 |  |
| R2003 |  | ERJ3GEYJ332 | M.RESISTOR CH 1/16W 3.3K | 1 |  |
| R2004 |  | ERJ3GEYJ564 | M.RESISTOR CH 1/16W 560K | 1 |  |
| R2005 |  | ERJ3GEYJ223 | M.RESISTOR CH 1/16W 22K | 1 |  |
| R2006 |  | ERJ8GEYJR33 | M.RESISTOR CH 1/8W 0.33 | 1 |  |
| R2007 |  | ERJ8GEYJ47V | M.RESISTOR CH 1/8W 0.47 | 1 |  |
| R2008-10 |  | ERJ3GEYJ682 | M.RESISTOR CH 1/16W 6.8K | 3 |  |
| R2011 |  | ERJ3GEYJ561 | M.RESISTOR CH 1/16W 560 | 1 |  |
| R2012 |  | ERJ3GEYJ102 | M.RESISTOR CH 1/16W 1K | 1 |  |
| R2013 |  | ERJ8GEYJR33 | M.RESISTOR CH 1/8W 0.33 | 1 |  |
| R2014 |  | ERJ8GEYJ3R3 | M.RESISTOR CH 1/8W 3.3 | 1 |  |
| R2015 |  | ERJ3GEYJ222 | M.RESISTOR CH 1/16W 2.2K | 1 |  |
| R2016 |  | ERJ3GEYJ563 | M.RESISTOR CH 1/16W 56K | 1 |  |
| R2017 |  | ERJ3GEYJ754 | M.RESISTOR CH 1/16W 750K | 1 |  |
| R2018 |  | ERJ3GEY0R00 | M.RESISTOR CH 1/16W 0 | 1 |  |
| R2019,20 |  | ERJ3GEYJ471 | M.RESISTOR CH 1/16W 470 | 2 |  |
| R2021 |  | ERJ6GEYJ101 | M.RESISTOR CH 1/10W 100 | 1 |  |
| R2022 |  | ERJ3GEYJ102 | M.RESISTOR CH 1/16W 1K | 1 |  |
| R2023 |  | ERJ3GEYJ154 | M.RESISTOR CH 1/16W 150K | 1 |  |
| R2024 |  | ERJ3GEYJ102 | M.RESISTOR CH 1/16W 1K | 1 |  |
| R2025 |  | ERJ3GEYJ333 | M.RESISTOR CH 1/16W 33K | 1 |  |
| R2026 |  | ERJ3GEYJ473 | M.RESISTOR CH 1/16W 47K | 1 |  |
| R2030,31 |  | ERJ3GEYJ223 | M.RESISTOR CH 1/16W 22K | 2 |  |
| R2032 |  | ERJ6GEYJ271 | M.RESISTOR CH 1/10W 270 | 1 |  |
| R2033 |  | ERJ3GEYJ102 | M.RESISTOR CH 1/16W 1K | 1 |  |
| R2034 |  | ERJ3GEYJ103 | M.RESISTOR CH 1/16W 10K | 1 |  |
| R2035 |  | ERJ8GEY0R00 | M.RESISTOR CH 1/8W 0 | 1 |  |
| R2037 |  | ERJ3GEYJ103 | M.RESISTOR CH 1/16W 10K | 1 |  |
| R2042,43 |  | ERJ3GEYJ473 | M.RESISTOR CH 1/16W 47K | 2 |  |
| R2049 |  | ERJ3GEYJ103 | M.RESISTOR CH 1/16W 10K | 1 |  |
| R2050 |  | ERJ3GEYJ681 | M.RESISTOR CH 1/16W 680 | 1 |  |
| R2051 |  | ERJ3GEYJ103 | M.RESISTOR CH 1/16W 10K | 1 |  |
| R2052 |  | ERJ3GEYJ272 | M.RESISTOR CH 1/16W 2.7K | 1 |  |
| R2053 |  | ERJ3GEYJ273 | M.RESISTOR CH 1/16W 27K | 1 |  |
| R2054 |  | ERJ3GEYJ333 | M.RESISTOR CH 1/16W 33K | 1 |  |
| R2055,56 |  | ERJ3GEYJ102 | M.RESISTOR CH 1/16W 1K | 2 |  |
| R2057 |  | ERJ3GEYJ472 | M.RESISTOR CH 1/16W 4.7K | 1 |  |
| R2058 |  | ERJ3GEYJ104 | M.RESISTOR CH 1/16W 100K |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  | MISCELLANEOUS |  |  |
|  |  | VMD1842 | REEL SENSOR HOLDER | 1 |  |